Repair Parts Manual

ATB 46e

battery powered
electric

Manufactured 01-97 through 01-01

P/N 0161861
April 1997 - revised Decmber 2001

Snorkel

About this manual:

This repair parts manual covers current production machines only.

While Snorkel has attempted in every way to confirm that all information in this manual is correct, improvements are being constantly made to the machine that may not be reflected in this manual.

If you find information in this manual that is not correct, or is confusing, you are urged to report your findings to Snorkel for our evaluation.

Your input is important to us and will be used in future printings of this manual.

Every person who repairs this machine must be qualified and authorized to do so.

⚠CAUTION

DO NOT modify this aerial platform without prior written consent of Snorkel Engineering Department. Modification may void the warranty, adversely affect stability, or affect the operational characteristics of the aerial platform.

This machine is covered by a limited warranty that specifically identifies items warrantied by Snorkel and those items covered by original manufacturers warranty.

A copy of the Snorkel Limited Warranty is located on the inside of the back cover of this manual.

All correspondence relative to this machine, such as field reports, discrepancy reports, requests for information, etc., should be directed to:

Snorkel International, Inc.
P.O. Box 1160
St. Joseph, MO 64502-1160 USA
Phone: (816)-364-0317

http://www.snorkelusa.com

Abbreviations

The following abbreviations may be used in this manual:

AC. . . . . alternating current
ANSI . . . . . American National Standards Institute
CCA. . . . . cold cranking amps
cm. . . . . centimeter
DC. . . . . direct current
EMS . . . . . envelope management system
GFCI . . . . . ground fault circuit interrupt
LP . . . . . liquified petroleum
LPG . . . . . liquified petroleum gas
mm . . . . . millimeters
ft . . . . . feet
in . . . . . inch
lbs . . . . . pounds
no . . . . . number
NPT . . . . . national pipe thread
psi . . . . . pounds per square inch
qty . . . . . quantity
UL . . . . . Underwriters Laboratories Inc.

Electrical Hazard

⚠DANGER

The aerial platform is not electrically insulated. Death or serious injury can result from contact with, or inadequate clearance from, an energized conductor.

Do not go closer than the minimum safe approach distance as defined by the minimum Safe Approach Distance as defined by ANSI Standards.

Regard all conductors as energized.

Allow for electrical wire sag and aerial platform sway.

If the work platform, or any part of the aerial platform contacts a high-voltage electrical conductor, the entire machine can become electrically charged.

If that happens, remain on the machine and do not contact any other structure or object. This includes the ground, adjacent buildings, poles, and any other objects that are not part of the aerial platform.

Such contact could make your body a conductor to the other object, creating an electrical shock hazard resulting in death or serious injury.

If an aerial platform is in contact with an energized conductor the platform operator must warn ground personnel in the vicinity to stay away. Their bodies can conduct electricity creating an electrical shock hazard resulting in death or serious injury.

Do not approach or leave the aerial platform until the electricity has been turned off.

Do not attempt to operate the lower controls when the work platform or any part of the aerial platform is in contact with a high-voltage electrical conductor or if there is an immediate danger of such contact.

Personnel on or near an aerial platform must be continuously aware of electrical hazards, recognizing that death or serious injury can result from contact with an energized conductor.

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To order service or repair parts

When placing an order for service or repair parts, please have the following information available for your machine.

- ✓ Machine model number
- ✓ Machine serial number
- ✓ Snorkel part number
- ✓ Description of part
- ✓ Quantity of parts required
- ✓ Your purchase order number
- ✓ Address for order to “Ship To”
- ✓ Your desired shipment method

The parts order form on the following page may be mailed or faxed to the attention of Parts Worldwide at the following location:

Snorkel International, Inc.
P.O. Box 1160
St. Joseph, MO 64502-1160 USA

Phone: 1-(800)-255-0317
Parts Worldwide Fax: (816)-364-6312

Attention: Parts Department

For your convenience, our electronic on-line ordering system is available at the following Internet location:

http://www.omniquip.com

ANSI and OSHA compliance

All owners and users of the aerial platform must read, understand, and comply with all applicable regulations. Ultimate compliance to OSHA regulations is the responsibility of the user and their employer.

ANSI publications clearly identify the responsibilities of all personnel who may be involved with the aerial platform. A reprint of the “Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI/SIA A92.5-1992 Boom-Supported Elevating Work Platforms” is available from Snorkel dealers or from the factory upon request.

Copies are also available from:

Scaffold Industry Association
20335 Ventura Blvd. Suite 310
Woodland Hills, CA 91364-2471 USA

Manuals

Manuals are available from Snorkel to support any of the machines that we produce.

The specific manuals for ATB 46e are as follows:

- ✓ Operator’s Manual
  Snorkel part number - 0161457
- ✓ Repair Parts Manual
  Snorkel part number - 0161861
- ✓ Troubleshooting Guide
  Snorkel part number - 0162737
- ✓ ANSI Manual of Responsibilities
  ANSI/SIA A92.5-1992

Record machine information here:

Model number

_____

Serial number

_____

Date of purchase

_____

Purchased from

_____

Snorkel dealer or distributor

_____

Parts order form

Fill out completely and fax to (816)-364-6312 attention: Parts Worldwide

Date _____ Model _____

Company _____ Serial number _____

Address _____ Optional equipment _____

_____ Purchase order number _____

Contact name _____ Ship to _____

Phone number _____ _____

Fax number _____ _____

Account number _____ _____

Purchase order number _____ Ship by _____

Part number	Description	Quantity	Price

Note: Backordered parts will be shipped as soon as available by the same shipping method as the original order unless indicated below:

- ☐ Ship complete order only - do not backorder parts.
- ☐ Ship all available parts and supply information of disposition of backordered parts.
- ☐ Other instructions as specified _____

_____

ATB 46e

OmniQuip® TEXTRON

Snorkel® INTERNATIONAL

Chassis

item	part no	qty	description
1	0150059	1	Rotation bearing
2	0150216	1	Cylinder, steering - (see hydraulics section for parts breakdown)
3	0163168	1	Cable, 10 gauge/2 conductor
4		1	Chassis - (consult factory)
5	0160546	1	Arm, swing stop
6	0161014	1	Placard, battery disconnect
7	300840	1	Lockout lever
8	0160560	1	Tie rod
9	0162786	2	Steering yoke - (see page 1-7 for parts breakdown)
10	0160563	4	Pin, tie rod
11	0160564	4	King pin
12	3040469	1	Relay, 12 volt DC
13	986769	2	Machine washer
14	5560345	1	Capscrew 3/4-10 x 3-1/4 inch long hex head grade 5 full thread
15	5560689	2	Machine bushing 1-1/2 inch OD x 1 inch ID x 14 gauge thick
16	970889	8	Capscrew 1/2-13 x 1 inch long hex head grade 5
17	0162225	1	Fuse block
18	562846	1	Relay, 24 volt DC
19	970369	6	Capscrew 5/16-18 x 1 inch long hex head grade 5
20	970059	1	Capscrew 1/4-20 x 1-1/2 inch long hex head grade 5
21	3049911	1	DC\DC converter isolator
22	2580010	2	Thrust washer
23	300542	8	Snap ring 1 inch heavy duty
24	302324	2	Machine bushing 2-1/4 inch OD x 1-1/2 inch ID x 10 gauge thick
25	5035318	2	Straight thread 90° elbow
26	25560167	1	Trimlock 36 inch long
27	970909	16	Capscrew 1/2-13 x 1-1/2 inch long hex head grade 5
28	3040269	6	Insulator boot
29	3040268	4	Insulator boot
30	238396	1	Plug male 125 volt AC
31	0350726	1	Battery wire, red
32	5560283	12	Capscrew 5/8-11 x 1-1/2 inch long hex head grade 8 locking
33	5569856	3	Capscrew 5/16-18 x 3/8 inch long hex head grade 5
34	302574	1	Lanyard
35	5560170	2	Washer 3/4 hard flat ASTM-F436
36	5560035	1	Nut 3/4-10 self locking
37	3040472	1	Plug, female 125 volt AC
38	7280001	18	Lug nut
39	3011203	1	Wire, 12 gauge/3 conductor x 96 feet long
40	0160953	2	Latch
41	25560277	1	Trimlock 48 inch long
42	3040691	1	Connector
43	5560169	30	Washer 5/8 hard flat ASTM-F436
44	5560201	18	Capscrew 5/8-11 x 2-1/2 inch long locking hex head grade 8
45	970259	8	Capscrew 5/16-18 x 1 inch long hex head grade 5
46	987109	11	Washer 5/16 medium lock
47	5560609	13	Machine screw #10-24 x 1/2 inch long truss head
48	5560034	14	Nut #10-24 self locking
49	987119	4	Washer 3/8 medium lock
50	970489	2	Capscrew 3/8-16 x 1-1/2 inch long hex head grade 5
51	970479	4	Capscrew 3/8-16 x 1-1/4 inch long hex head grade 5
52	986299	16	Washer 3/8 medium flat
53	5560033	8	Nut 3/8-16 self locking
54	970049	6	Capscrew 1/4-20 x 1 inch long hex head grade 5
55	5560004	11	Nut 1/4-20 self locking

Parts list continued on next page

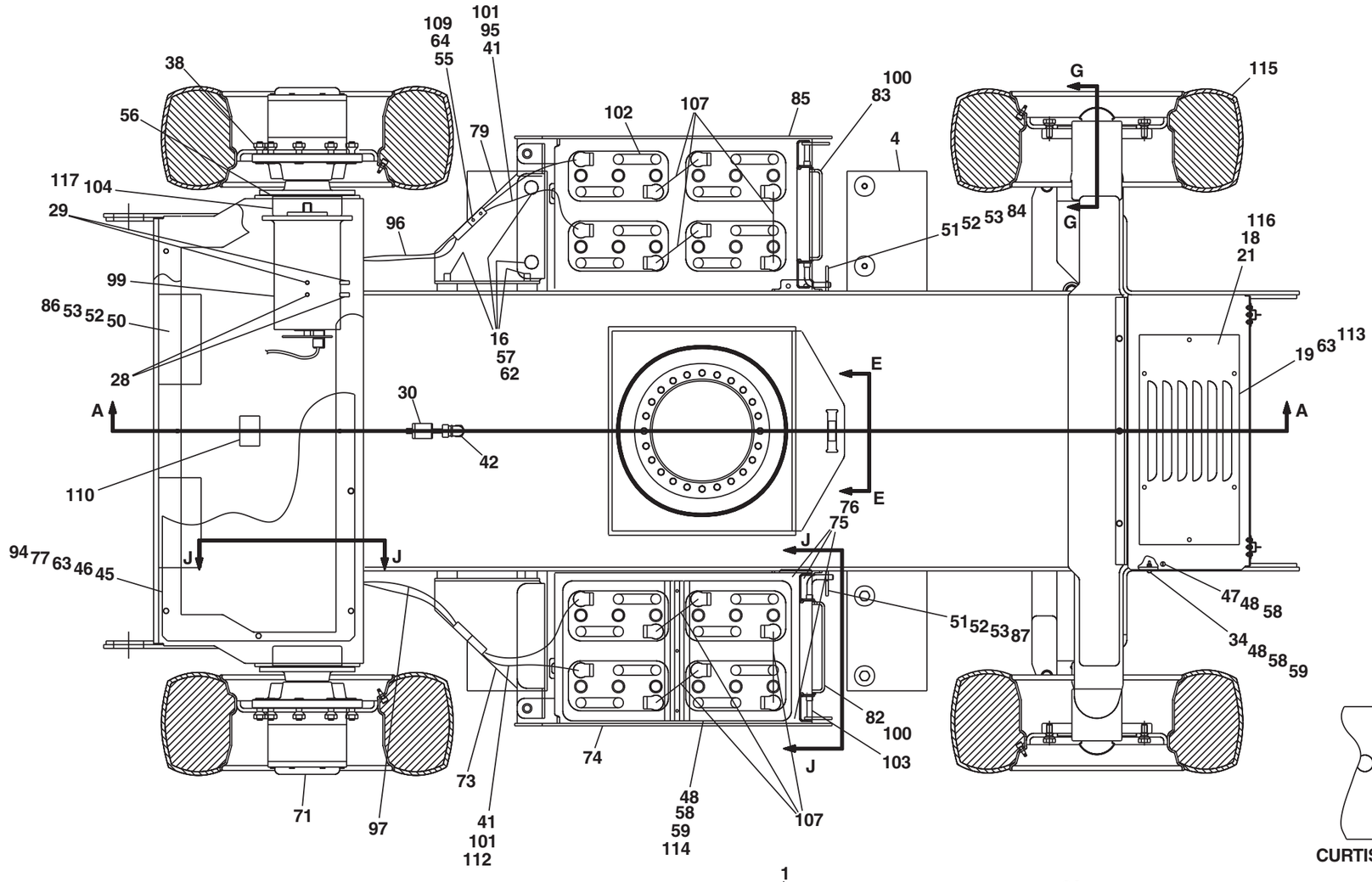
Chassis

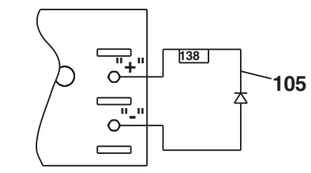
item	part no	qty	description
56	7110045	2	O-ring
57	986359	8	Washer 1/2 medium flat
58	986009	10	Washer #10 medium flat
59	5560648	13	Machine screw #10-24 x 3/4 inch long truss head
60	5560168	4	Washer 1/2 hard flat ASTM-F436
61	5560154	4	Capscrew 1/2-13 x 1-3/4 inch long hex head grade 8
62	987139	24	Washer 1/2 medium lock
63	5560031	14	Nut 5/16-18 self locking
64	986019	10	Washer 1/4 medium flat
65	5093027	1	Clamp
66	970449	4	Capscrew 3/8-16 x 3/4 inch long hex head grade 5
67	5560296	2	Drive screw #4 x 1/2 inch long PK type U
68	5093000	1	Clamp
69	5093010	1	Clamp
70	5093012	1	Clamp
71	0160500	2	Gear hub - (see page 1-40 for parts breakdown)
72	3040536	4	Connector
73	0160509	1	Bracket, right battery tray
74	0160510	1	Tray, right battery
75	0160519	2	Insulator angle
76	0160520	2	Battery hold down
77	0163063	1	Cover, rear
78	0163056	1	Electric bulkhead - (see page 3-6 for parts breakdown)
79	0160557	1	Bracket, left battery tray
80	5569819	2	Capscrew, 5/8-11 x 1-1/8 special serrated head
81	3020061	1	Battery disconnect switch
82	0160572	1	Cover, right hand end
83	0160573	1	Cover, left hand end
84	0160574	1	Striker, left hand battery tray
85	0160578	1	Tray, left battery
86	0163068	1	GE drive control - (see page 3-6 for parts breakdown)
87	0160871	1	Striker, right hand battery tray
88	0160954	1	Front cover electric
89	300437	4	Bearing flanged
90	301406	2	Pin tray adjuster
91	302431	2	Slide pad
92	0161388	2	1/4 inch hydraulic hose
93	3049874	1	DC\DC converter
94	5560332	1	Rubber strip 1/8 x 1 x 60 inch long
95	0161646	1	Wire, battery
96	0161647	1	Wire, battery
97	0161648	1	Wire, battery
98	0163192	2	1/2 inch hydraulic hose
99	0162945	2	Motor, electric drive - (see page 1-42 for parts breakdown)
100	5530018	2	Extension spring
101	5569013	4	Grommet
102	563156	8	Battery, 6 volt DC - 350 CCA
103	573564	4	Battery hold down
104	7200021	2	Brake, electric drive motor
	0181852	1	Lining repair kit
	0181853	1	O-ring repair kit
	0181854	1	Bearing repair kit
105	0162177	1	Wire DC/DC transient suppresser

Parts list continued on next page

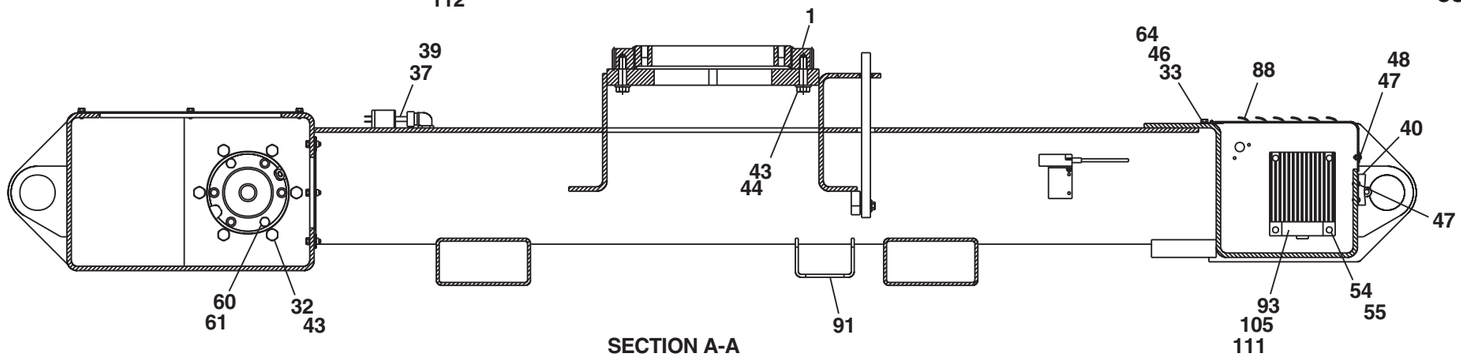
Chassis

item	part no	qty	description1
106	0163193	1	1/2 inch hydraulic hose
107	0161408	6	Jumper wire
108	302807	2	Jumper wire
109	5569886	4	Capscrew 1/4-20 x 1-3/4 inch long hex head grade 5
110	0162021	1	Decal, caution drive motors
111	7190007	1	Gasket
112	0150444	1	Battery wire
113	0161981	1	Plate
114	0161643	2	Cover, batteries
115	0160595	4	Tire, foam filled 9.5 x 16.5 - 8 ply
116	3050092	1	Battery charger, 115 volt - (see page 3-14 for parts breakdown)
	3050093	1	Battery charger, 230 volt - (see page 3-15 for parts breakdown)
117	5035321	2	Straight thread 90° elbow
118	5093006	1	Clamp
119	3040452	2	Insulator boot





CURTIS CONVERTOR DETAIL

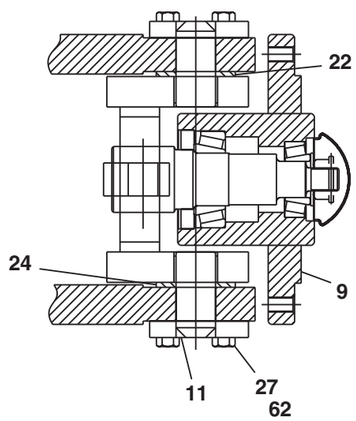


SECTION A-A

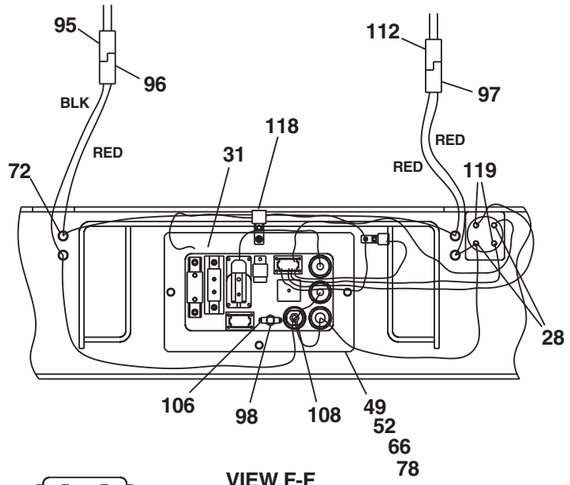
AWA16184E-2

TITLE Chassis
sheet 1
Snorkel model ATB 46e

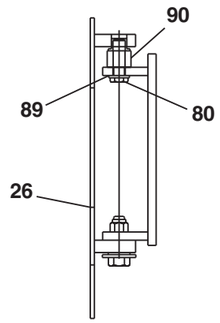
Snorkel INTERNATIONAL



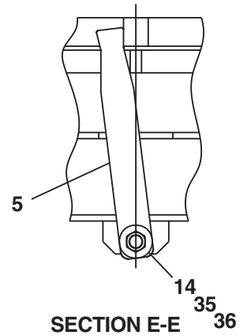
SECTION G-G



VIEW F-F



VIEW J-J



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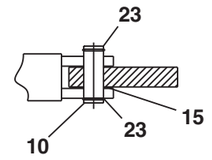

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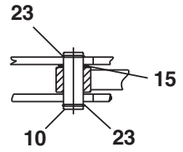
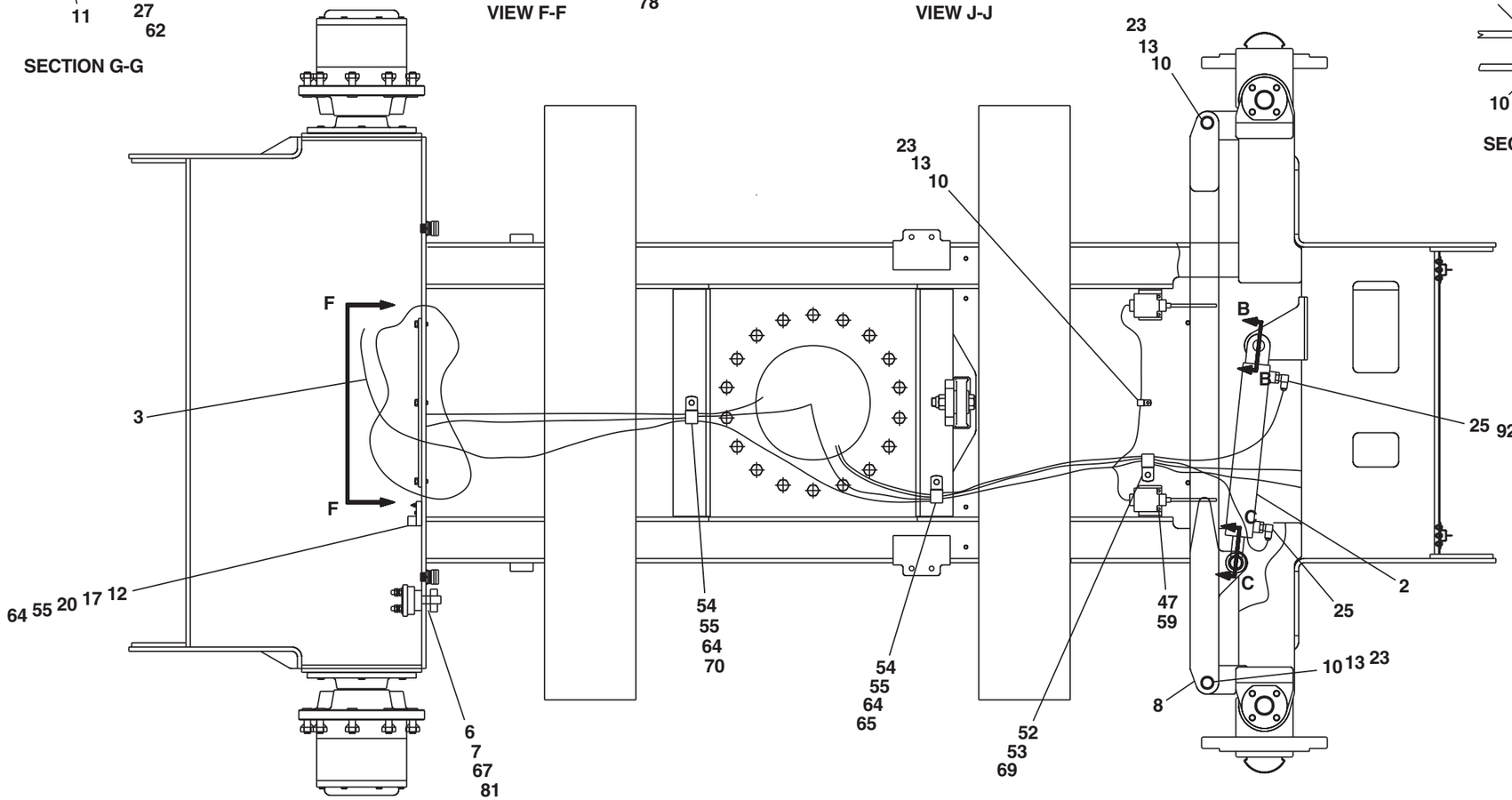


SECTION C-C

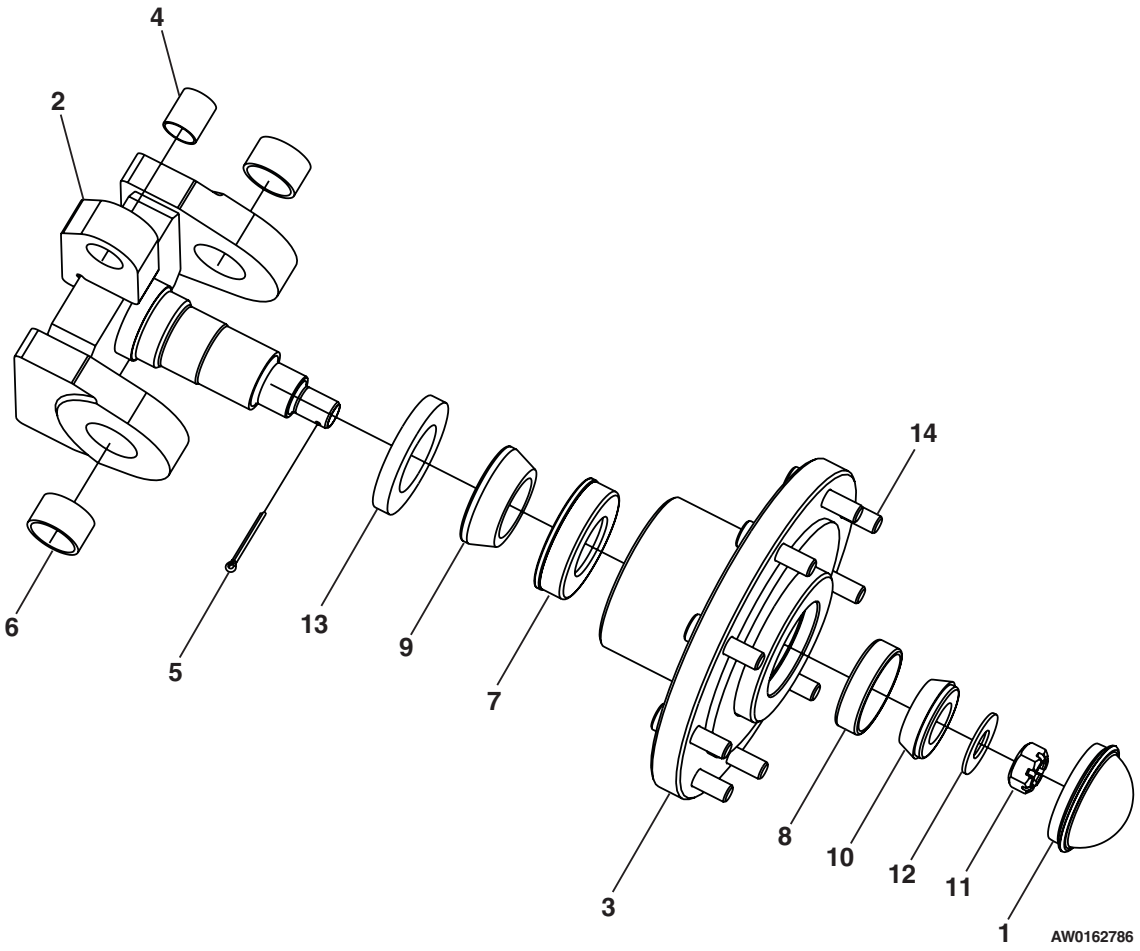


BOTTOM VIEW

AWA16184E-3

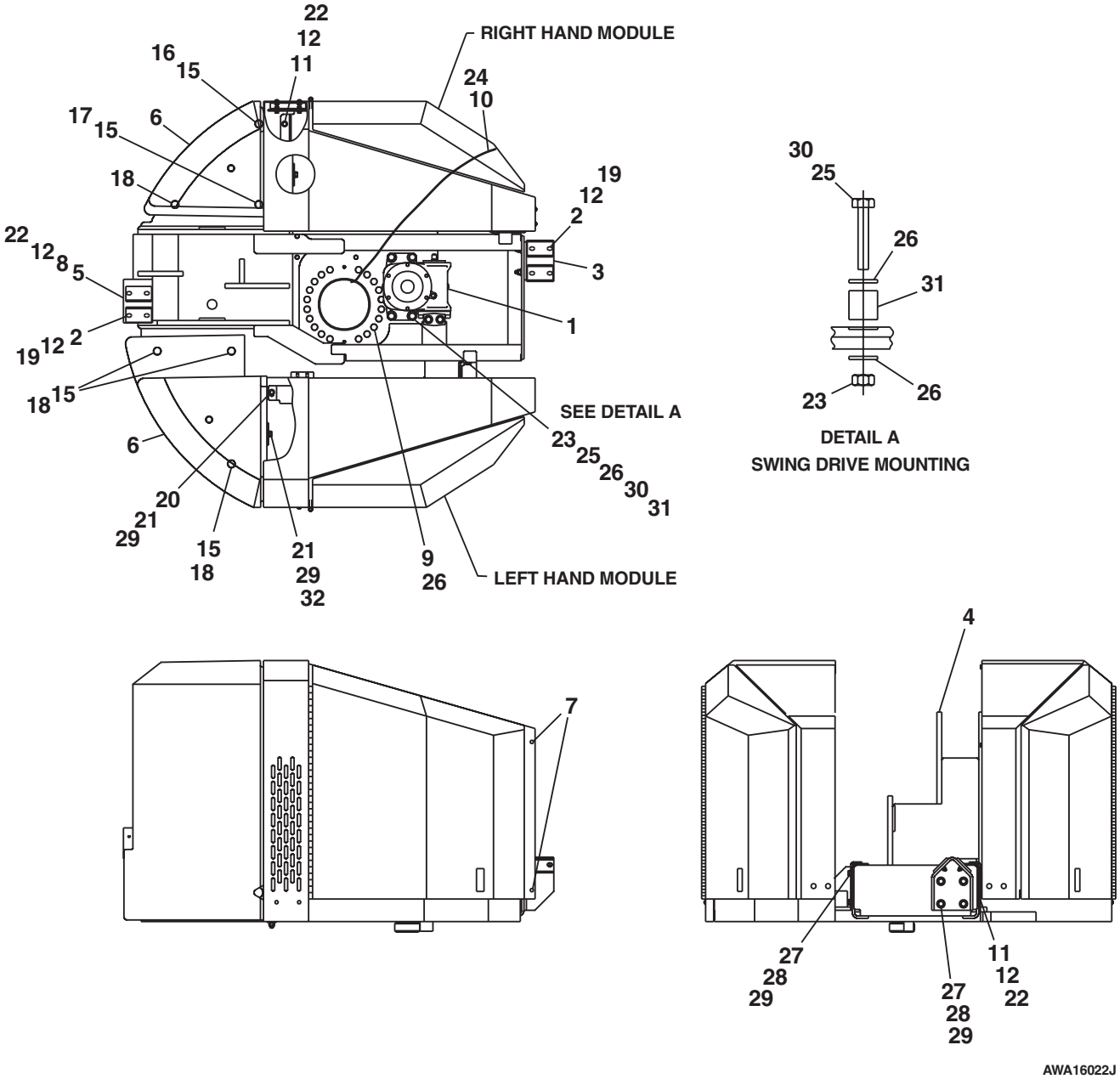
Steering yoke

item	part no	qty	description
	0162786	1	Steering yoke
1	0150599	1	Hub cap
2	0160562	1	Steering yoke
3	0163060	1	Steering hub
4	561196	1	Bearing
5	988129	1	Cotter pin 5/32 inch diameter x 1-3/4 inch long
6	2502229	2	Bearing
7	2540005	1	Inner bearing cup
8	2540010	1	Bearing cup
9	2560005	1	Outer bearing cone
10	2560010	1	Bearing cone
11	5560160	1	Spindle nut
12	5560161	1	Spindle nut washer
13	7150016	1	Seal
14	8010041	9	Stud, lug bolt



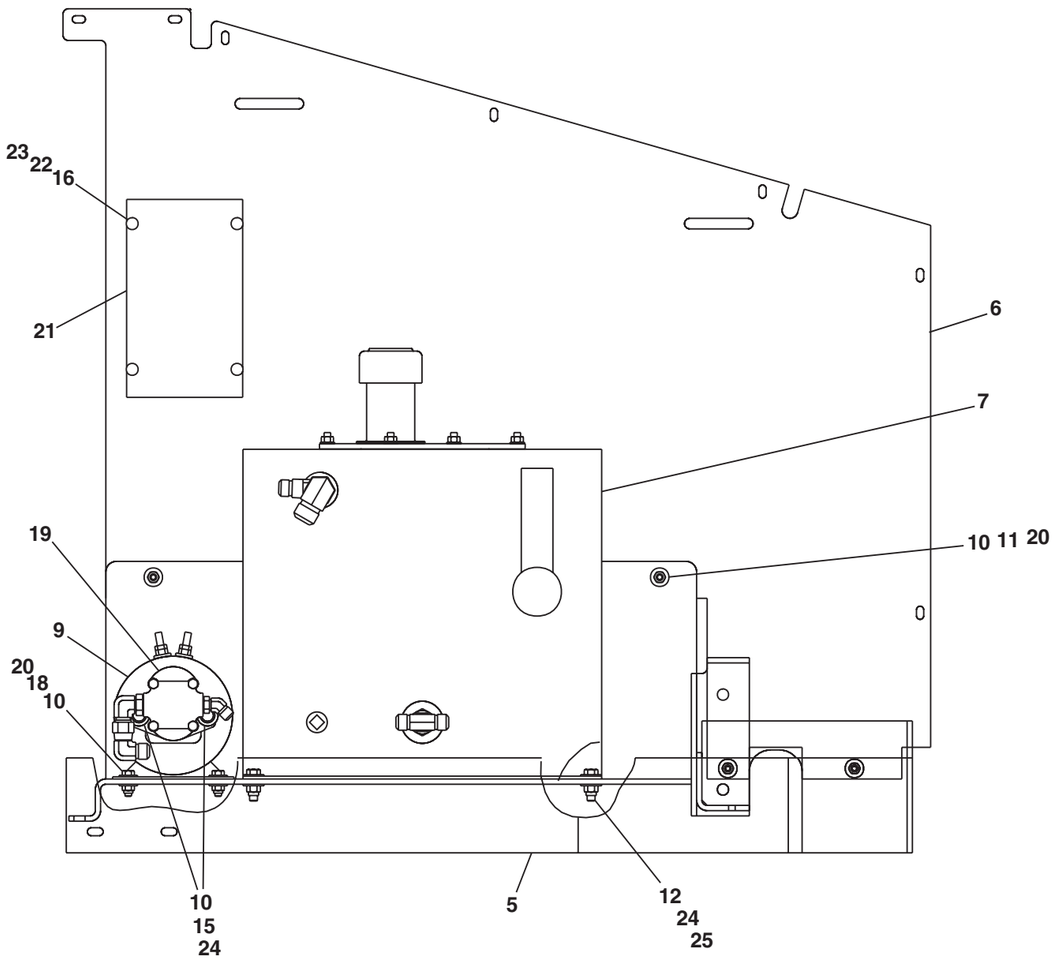
Turntable

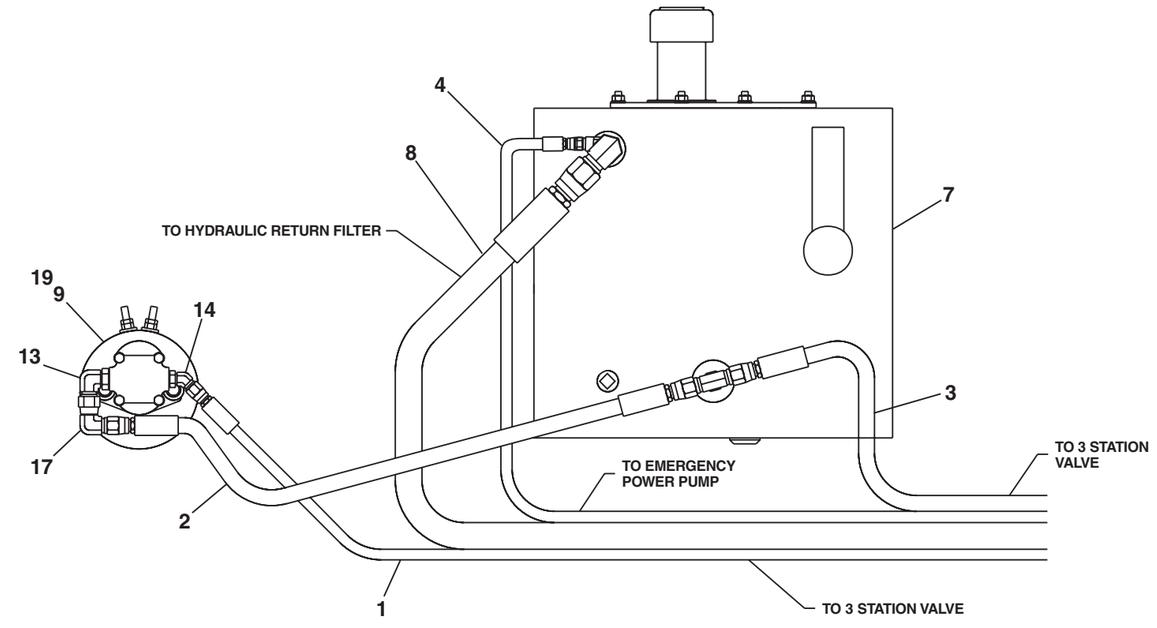
item	part no	qty	description
1	0161411	1	Swing drive - (see page 1-33 for parts breakdown)
2	0160698	4	Riser support pad
3	0160699	1	Riser support
4		1	Turntable - (consult factory)
5	0162715	1	Rear boom rest
6	0162072	1	Counterweight set
7	5569012	4	Rubber bumper
8	970479	2	Capscrew 3/8-16 x 1-1/4 inch long hex head grade 5
9	5560201	20	Capscrew 5/8-11 x 2-1/2 inch long locking hex head grade 8
10	5038702	1	Male 45° elbow
11	972439	4	Carriage bolt 3/8-16 x 1-1/4 inch long
12	5560033	14	Nut 3/8-16 self locking
13	0050400	2	3/8 inch hydraulic hose
14	0161390	2	3/8 inch hydraulic hose
15	986309	6	Washer hard flat 1-7/8 inch OD x 3/4 inch ID
16	5560303	1	Capscrew 3/4-10 x 1-3/4 inch long hex head grade 5
17	5569884	1	Capscrew 3/4-10 x 2-1/2 inch long hex head grade 5
18	5560293	4	Capscrew 3/4-10 x 2 inch long hex head grade 5
19	5569890	8	Capscrew screw 3/8-16 x 1 inch long socket flat head
20	970929	2	Capscrew 1/2-13 x 2 inch long hex head grade 5
21	987139	4	Washer 1/2 medium lock
22	986299	6	Washer 3/8 medium flat
23	5569958	3	Nut 5/8-11 self locking
24	0070772	1	1/4 inch hydraulic hose
25	5560306	1	Capscrew 5/8-11 x 4 inch long hex head grade 8 locking
26	5560169	27	Washer 5/8 hard flat ASTM-F436
27	970849	6	Capscrew 1/2-13 x 1-1/4 inch long hex head grade 5
28	984149	6	Nut 1/2-13 hex
29	986359	10	Washer 1/2 medium flat
30	5569957	3	Capscrew 5/8-11 x 5-1/4 inch long locking hex head grade 8
31	0163169	4	Spacer, swing drive - (not used on Tulsa Winch swing drive)
32	970889	2	Capscrew 1/2-13 x 1 inch long hex head grade 5


RIGHT HAND MODULE
SEE DETAIL A
LEFT HAND MODULE
DETAIL A
SWING DRIVE MOUNTING
AWA16022J

Tray, left hand

item	part no	qty	description
1	0070789	1	3/8 inch hydraulic hose
2	0072957	1	1/2 inch hydraulic hose
3	0110732	1	1/2 inch hydraulic hose
4	0163194	1	1/2 inch hydraulic hose
5	0160881	1	Tray, left hand
6	0162392	1	Backwall, left hand
7	0162548	1	Hydraulic oil reservoir - (see page 2-42 for parts breakdown)
8	0400497	1	3/4 inch hydraulic hose
9	3080022	1	Motor, 48 volt DC - 4 horsepower
10	986269	9	Washer 5/16 medium flat
11	970469	2	Capscrew 3/8-16 x 1 inch long hex head grade 5
12	986299	12	Washer 3/8 medium flat
13	5035306	1	Straight thread 90° elbow
14	5035705	1	Straight thread 45° elbow
15	987119	2	Washer 3/8 medium lock
16	986019	4	Washer 1/4 medium flat
17	5037006	1	Swivel nut 90° elbow
18	970259	4	Capscrew 5/16-18 x 1 inch long hex head grade 5
19	6020075	1	Hydraulic gear pump
20	5560031	3	Nut 5/16-18 self locking
21	3080029	1	Motor controller
22	972569	4	Carriage bolt 1/4-20 x 3/4 inch long
23	5560004	4	Nut 1/4-20 self locking
24	970479	4	Capscrew 3/8-16 x 1-1/4 inch long hex head grade 5
25	5560033	4	Nut 3/8-16 self locking
26	5569888	3	Carriage bolt 5/16-18 x 1 inch long





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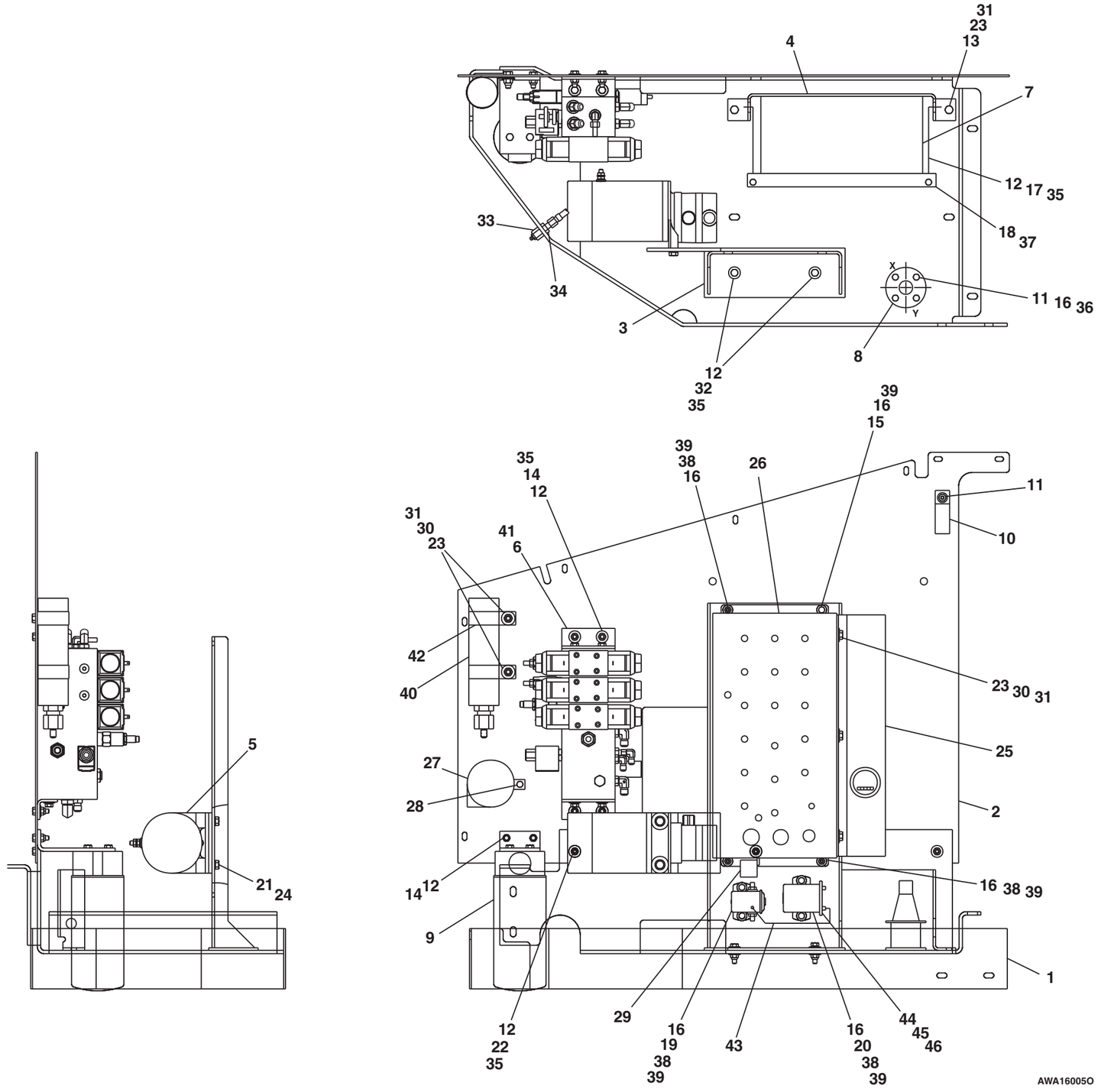
TITLE Tray, left hand

Snorkel model ATB 46e

OmniQuip Snorkel INTERNATIONAL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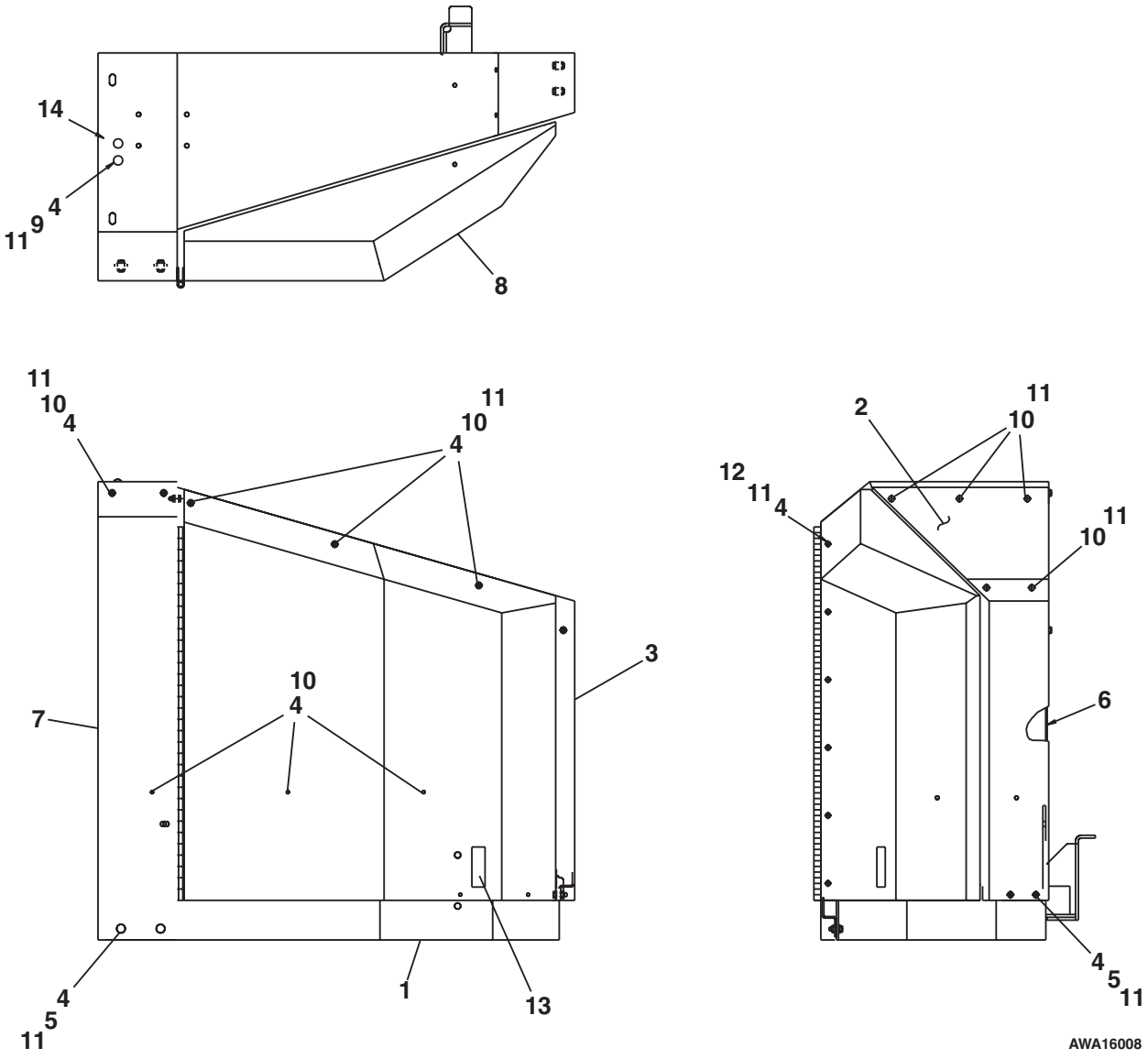
Tray, right hand

item	part no	qty	description
1	0160979	1	Tray, right hand
2	0162389	1	Backwall, right hand
3	0161148	1	Mount, lower controls
4	0161306	1	Battery stop
5	0161368	1	Emergency power pump - (see page 2-38 for parts breakdown)
6	0161255	1	Control valve, 3 station - (see page 2-6 for parts breakdown)
7	3050002	1	Battery, 12 volt DC - 550 CCA
8	3020202	1	Tilt alarm 5°, 1 second delay
9	0161644	1	Hydraulic oil filter - (see page 2-39 for parts breakdown)
10	5093013	1	Clamp
11	970029	11	Capscrew 1/4-20 x 3/4 inch long hex head grade 5
12	5560031	9	Nut 5/16-18 self locking
13	970479	2	Capscrew 3/8-16 x 1-1/4 inch long hex head grade 5
14	970259	2	Capscrew 5/16-18 x 1 inch long hex head grade 5
15	970049	1	Capscrew 1/4-20 x 1 inch long hex head grade 5
16	5560004	14	Nut 1/4-20 self locking
17	0150910	2	Battery hold down bolt
18	0150813	1	Battery hold down angle
19	3040506	1	Solenoid, 12 volt DC
20	3040193	1	Contactor, 48 volt DC
21	970469	2	Capscrew 3/8-16 x 1 inch long hex head grade 5
22	5569888	3	Carriage bolt 5/16-18 x 1 inch long
23	986299	7	Washer 3/8 medium flat
24	987119	2	Washer 3/8 medium lock
25	0161672	1	Gauge panel - (see page 3-18 for parts breakdown)
26	0161247	1	Lower control box - (see page 3-11 for parts breakdown)
27	3040127	1	Horn, 12 volt DC
28	5560288	1	Capscrew 1/4-20 x 1/2 inch long hex washer head self tapping
29	3040469	1	Relay, 12 volt DC
30	970469	5	Capscrew 3/8-16 x 1 inch long hex head grade 5
31	5560033	7	Nut 3/8-16 self locking
32	970269	2	Capscrew 5/16-18 x 1-1/4 inch long hex head grade 5
33	5074401	1	Bulkhead locknut
34	5037102	1	Bulkhead connector
35	986269	5	Washer 5/16 medium flat
36	5560341	5	Washer 1/4 star tooth lock
37	0150811	1	Insulator angle
38	972569	7	Carriage bolt 1/4-20 x 3/4 inch long
39	986019	9	Washer 1/4 medium flat
40	0161920	1	Accumulator - (see page 2-12 for parts breakdown)
41	0161463	1	Wire harness, turntable valves
42	5093014	2	Clamp
43	0071959	1	Jumper wire
44	987109	2	Washer 5/16 medium lock
45	984099	2	Nut 5/16-24 hex
46	5560038	2	Nut #10-32 self locking

Cowling, left hand

item	part no	qty	description
1	0160881	1	Tray, left hand
2	0160986	1	Top sheet, left hand
3	0162480	1	Front post, left hand
4	986269	21	Washer 5/16 medium flat
5	970259	4	Capscrew 5/16-18 x 1 inch long hex head grade 5
6	0162392	1	Backwall, left hand
7	0162388	1	Band
8	0160992	1	Door, left hand
9	5569888	2	Carriage bolt 5/16-18 x 1 inch long
10	5560372	13	Carriage bolt 5/16-18 x 3/4 inch long
11	5560031	24	Nut 5/16-18 self locking
12	970239	6	Capscrew 5/16-18 x 3/4 inch long hex head grade 5
13	5510014	1	Latch, sealed lever
14	0161338	1	Bracket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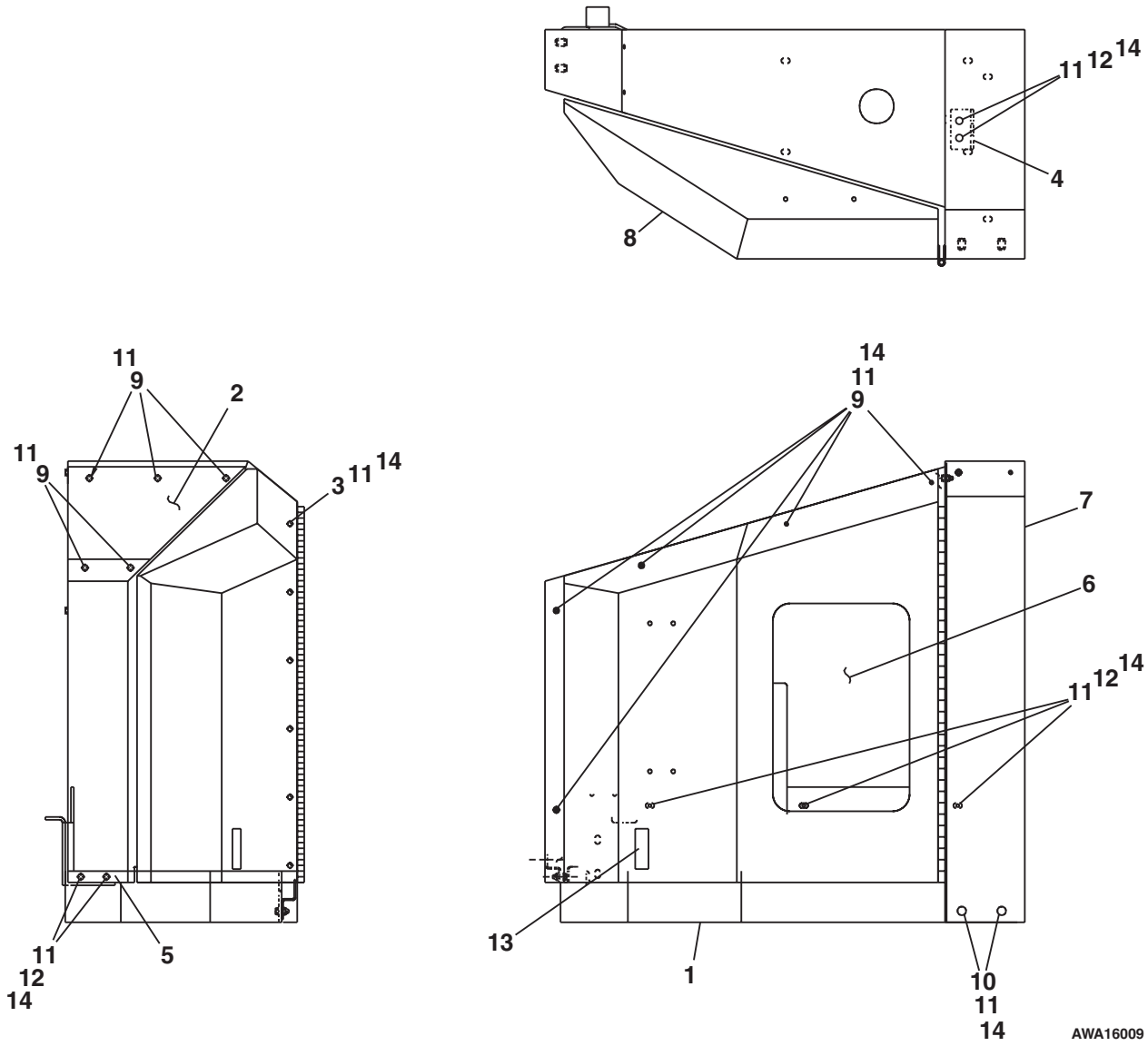
Cowling, right hand

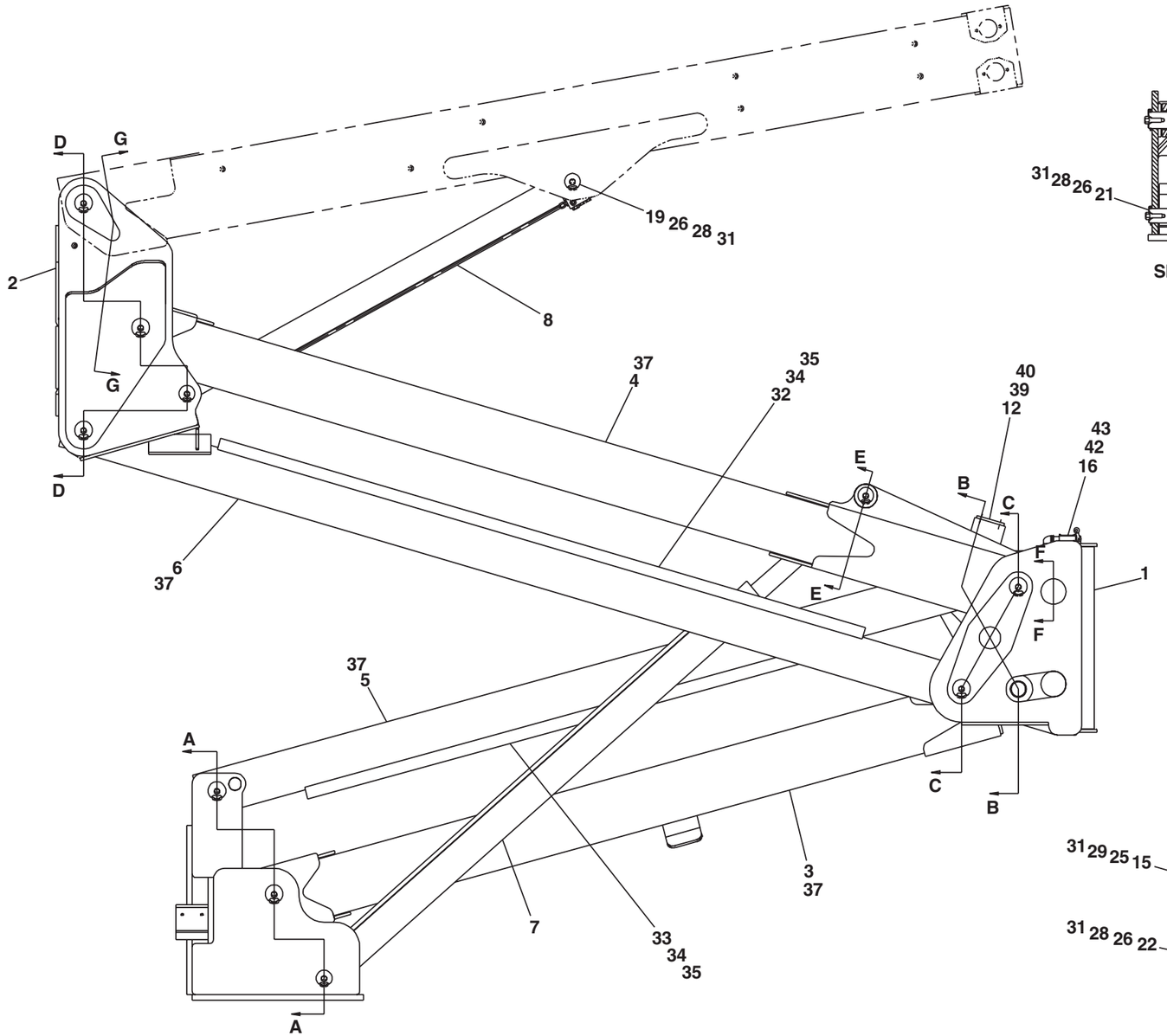
item	part no	qty	description
1	0160979	1	Tray, right hand
2	0160985	1	Top sheet, right hand
3	970239	6	Capscrew 5/16-18 x 3/4 inch long hex head grade 5
4	0161338	1	Bracket
5	0162383	1	Front post, right hand
6	0160996	1	Backwall, right hand
7	0162386	1	Band
8	0160990	1	Door, right hand
9	5560372	5	Carriage bolt 5/16-18 x 3/4 inch long
10	970259	2	Capscrew 5/16-18 x 1 inch long hex head grade 5
11	5560031	20	Nut 5/16-18 self locking
12	5569888	7	Carriage bolt 5/16-18 x 1 inch long
13	5510014	1	Latch, sealed lever
14	986269	19	Washer 5/16 medium flat

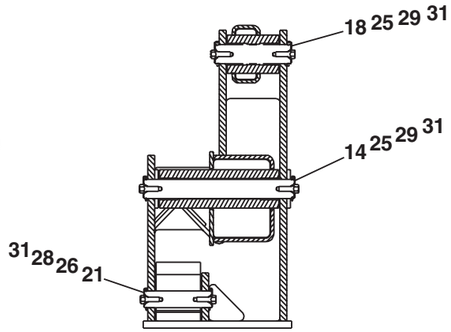
Cowling, right hand



Booms, lower

item	part no	qty	description
1	0160725	1	Riser bracket
2	0161046	1	Floating turret
3	0160685	1	Bottom arm
4	0160625	1	Top arm
5	0160681	1	Bottom follower bar
6	0160656	1	Top follower bar
7	0161185	1	Riser lift cylinder - (see hydraulics section for parts breakdown)
8	0161188	1	Main boom lift cylinder - (see hydraulics section for parts breakdown)
9	0160823	1	Bracket, master level cylinder
10	0150045	1	Cylinder, master level - (see hydraulics section for parts breakdown)
11	0160643	1	Timing link
12	0160698	1	Riser support pad
13	0160748	2	Pin
14	0160749	1	Pin
15	0160750	1	Pin
16	0162798	1	Boom limit switch - (see page 3-16 for parts breakdown)
17	0160752	1	Pin
18	0160754	3	Pin
19	0160755	1	Pin
20	0160756	3	Pin
21	0160757	1	Pin
22	0160758	1	Pin
23	0160946	1	Pin
24	0160947	1	Pin
25	0160763	16	Pin lock
26	0160764	12	Pin lock
27	0160972	4	Pin lock
28	5590026	12	Retaining ring
29	5590027	16	Retaining ring
30	5591100	4	Snap ring
31	300729	28	Capscrew, special
32	0160976	1	Top channel, hose guide
33	0160977	1	Bottom channel, hose guide
34	5560683	6	Capscrew 3/8-16 x 5/8 inch long hex head grade 5
35	987119	10	Washer 3/8 medium lock
36	986299	6	Washer 3/8 medium flat
37	2500048	16	Bearing
38	561116	4	Bearing
39	972559	2	Capscrew 3/8-16 x 1 inch long socket flat head
40	5560033	2	Nut 3/8-16 self locking
41	970469	4	Capscrew 3/8-16 x 1 inch long hex head grade 5
42	974749	2	Machine screw #10-24 x 1-3/4 inch long round head
43	5560034	2	Nut #10-24 self locking





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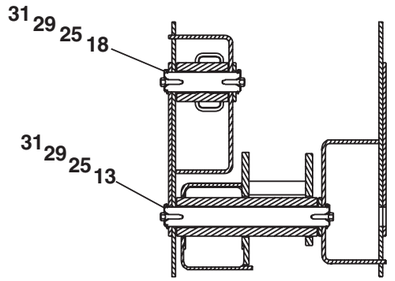

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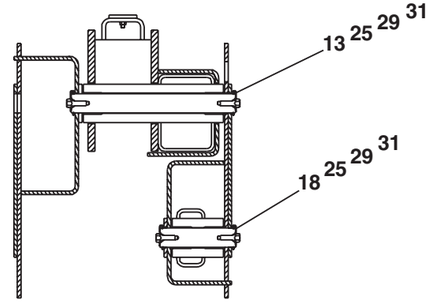

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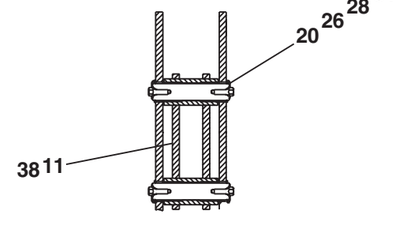

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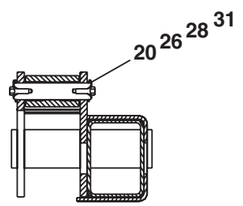

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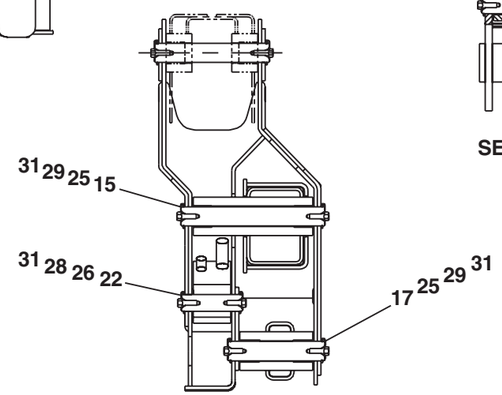

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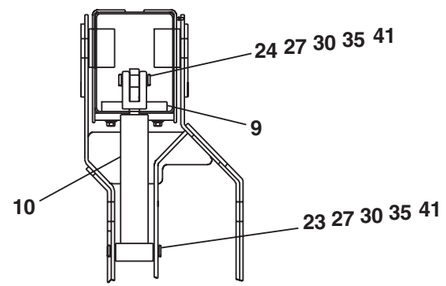

VIEW G-G

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TITLE Booms, lower

Snorkel model ATB 46e

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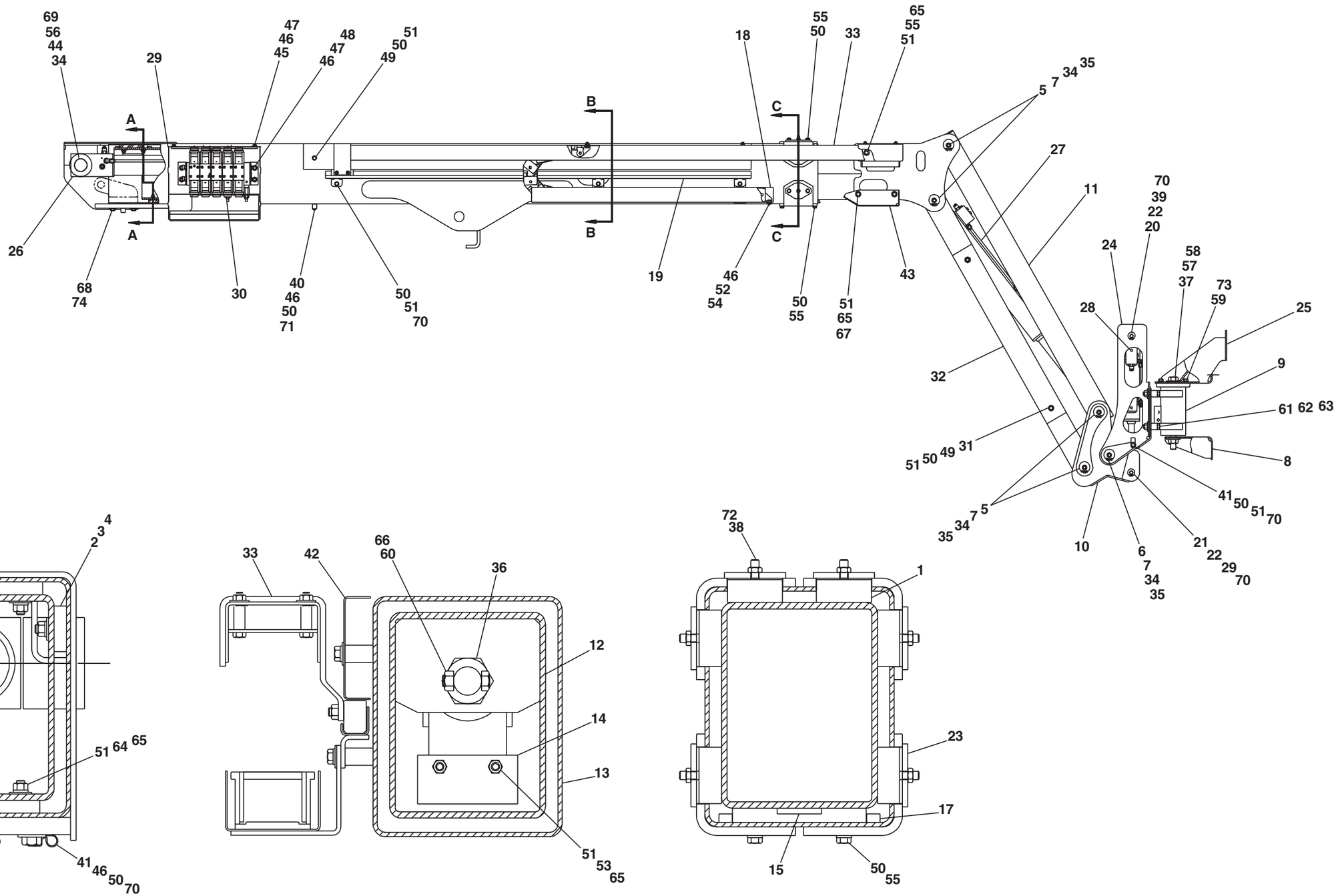
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Booms, upper

item	part no	qty	description
2	0070838	4	Slide pad shim, .030 inch thick
3	0071272	4	Slide pad shim, .063 inch thick
4	0161766	4	Slide pad
5	0160759	4	Pin
6	0160760	1	Pin
7	0160765	10	Pin lock
8	0160781	1	Platform mounting bracket, lower
9	0161526	1	Platform rotator - (see page 1-23 for parts breakdown)
10	0160804	1	Jib end bracket
11	0161865	1	Jib arm
12	0160844	1	Inner boom
13	0160847	1	Base boom
14	0160863	1	Slide block, extend cylinder
15	0160864	1	Slide pad
16	0160866	1	Slide pad
17	0160867	1	Plate, slide mount
18	0160944	1	Bottom channel
19	0160945	1	Slide channel
20	0160948	1	Pin
21	0160949	1	Pin
22	0160972	4	Pin lock
23	0161005	6	Slide pad retainer plate
24	0161023	1	Rotary mount bracket
25	0161044	1	Platform mounting bracket, upper
26	0161186	1	Extension cylinder - (see page 2-13 for parts breakdown)
27	0161187	1	Jib cylinder, GBI or Prince - (see page 2-16 for parts breakdown)
	0162795	1	Jib cylinder, Rosenboom - (see page 2-17 for parts breakdown)
28	0161189	1	Slave level cylinder - (see hydraulic section for parts breakdown)
29	0161203	1	Cover, control valve
30	0161223	1	Control valve, 5 station - (see page 2-8 for parts breakdown)
31	0161307	1	Channel, jib hose carrier
32	0161866	1	Jib arm with standoffs
33	0161427	1	Power teak - (see page 1-24 for parts breakdown)
34	300729	12	Capscrew, special
35	302323	10	Retaining ring
36	5560030	1	Nut 1-1/4-12 self locking
37	5560281	1	Capscrew 1-8 x 12 inch long hex head grade 5
38	5560197	6	Set screw 3/8-16 x 1 inch long hex socket flat point
39	5591100	4	Snap ring
40	5093001	2	Clamp
41	5093004	4	Clamp
42	0160903	1	Hose guide channel
43	0161374	1	Boom switch flag
44	0160751	1	Pin
45	970219	2	Capscrew 5/16-18 x 1/2 inch long hex head grade 5
46	986269	15	Washer 5/16 medium flat
47	987109	6	Washer 5/16 medium lock
48	970289	4	Capscrew 5/16-18 x 1-3/4 inch long hex head grade 5
49	5560683	6	Capscrew 3/8-16 x 5/8 inch long hex head grade 5
50	987119	32	Washer 3/8 medium lock

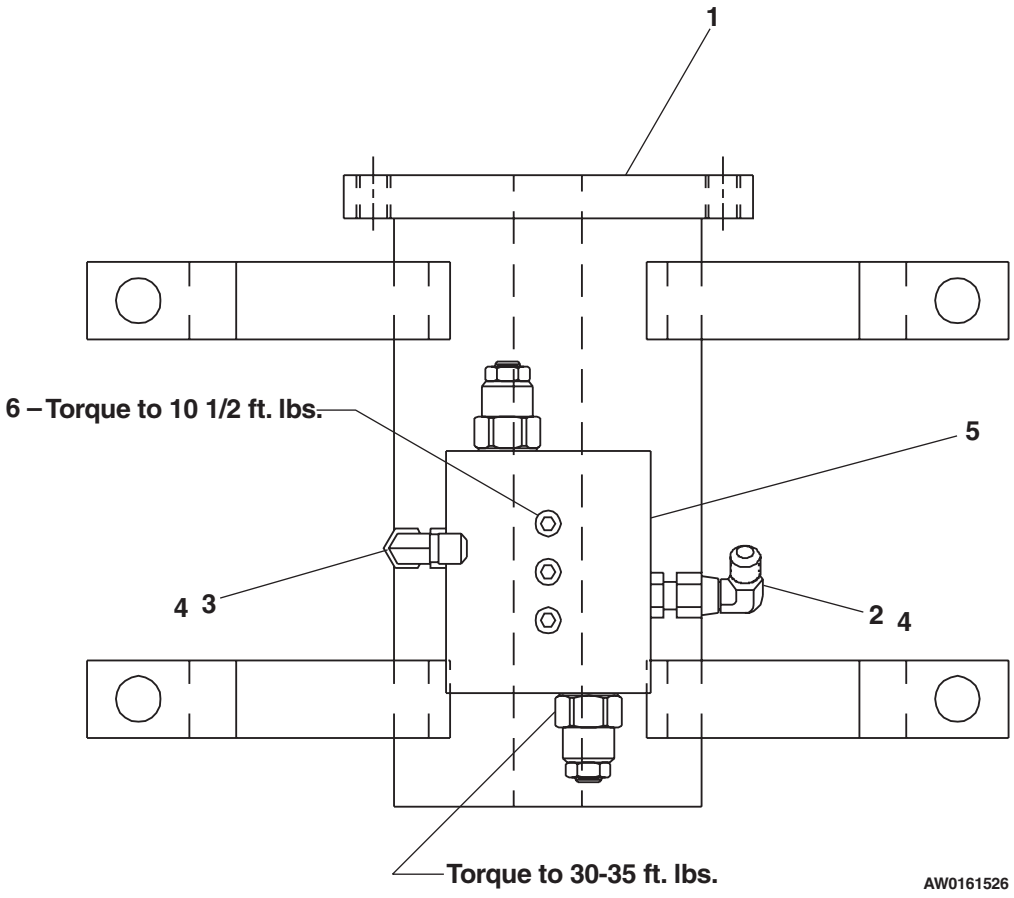
Parts list continued on next page

Booms, upper

item	part no	qty	description
51	986299	24	Washer 3/8 medium flat
52	5560031	2	Nut 5/16-18 self locking
53	5560106	2	Capscrew 3/8-16 x 2-3/4 inch long hex head grade 5
54	970229	4	Capscrew 5/16-18 x 5/8 inch long hex head grade 5
55	970469	20	Capscrew 3/8-16 x 1 inch long hex head grade 5
56	0160763	2	Pin lock
57	5560172	2	Washer 1 inch medium flat
58	984239	1	Nut 1-8 hex
59	970889	6	Capscrew 1/2-13 x 1 inch long hex head grade 5
60	5560039	1	Nut 1/2-13 self locking
61	5560195	4	Capscrew 5/8-11 x 2-1/2 inch long hex head grade 5
62	5560169	4	Washer 5/8 hard flat ASTM-F436
63	5560051	4	Capscrew 5/8-11 self locking - (torque 180 ft lbs)
64	5560644	6	Capscrew 3/8-16 x 1-1/4 inch long socket flat head
65	5560033	14	Nut 3/8-16 self locking
66	5569889	1	Capscrew 1/2-13 x 1-3/4 inch long self locking
67	970489	4	Capscrew 3/8-16 x 1-1/2 inch long hex head grade 5
68	5560168	4	Washer 1/2 hard flat ASTM-F436
69	5590027	2	Retaining ring
70	970449	9	Capscrew 3/8-16 x 3/4 inch long hex head grade 5
71	970426	2	Capscrew 3/8-16 x 7/8 inch long hex head grade 5
72	5560611	6	Nut 3/8-16 hex jam
73	987139	6	Washer 1/2 medium lock
74	5560302	4	Capscrew 1/2-13 x 2 inch long self locking

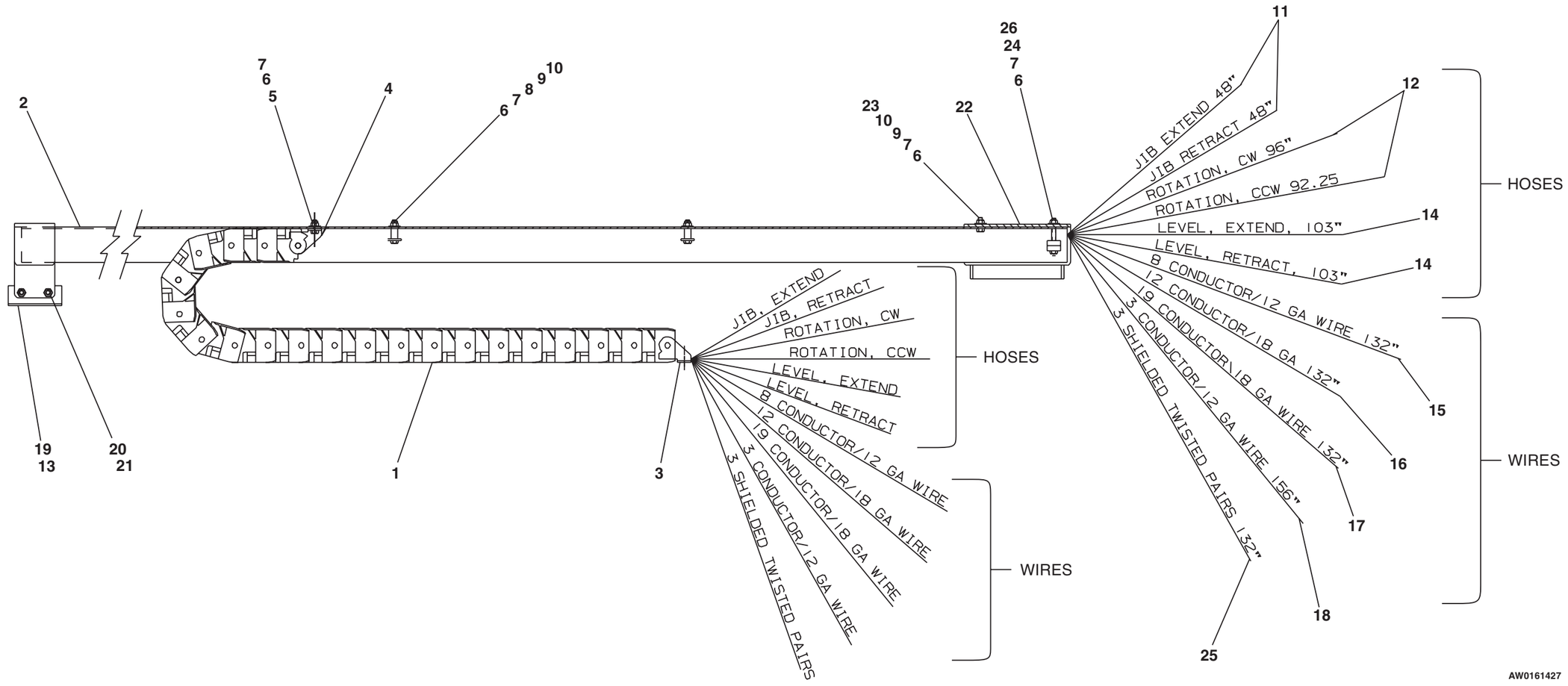
Platform rotator

item	part no	qty	description
	0161526	1	Platform rotator
1	0161808	1	Hydraulic platform rotator - (see page 2-40 for parts breakdown)
2	5065703	1	Straight thread adapter
3	5037003	2	Swivel nut 90° elbow
4	5035303	1	Straight thread 90° elbow
5	6018912	1	Dual counterbalance valve - (factory preset, do not reset)
	6010794	1	Replacement cartridge
6	978419	3	Capscrew 1/4-20 x 1-1/2 inch long socket head



Power trak

item	part no	qty	description
	0161427	1	Power trak
1	9920026	20	Power track link
2	0160943	1	Top channel
3	9920028	1	Mounting bracket, male
4	9920027	1	Mounting bracket, female
5	970239	4	Capscrew 5/16-18 x 3/4 inch long hex head grade 5
6	986269	10	Washer 5/16 medium flat
7	5560031	10	Nut 5/16-18 self locking
8	5560674	6	Capscrew 5/16-18 x 1-1/2 inch long hex head grade 5
9	0161416	2	Clamp bar
10	0071510	4	Spacer, air cleaner
11	0161333	2	1/4 inch hydraulic hose
12	0150315	2	1/4 inch hydraulic hose
13	0161864	1	Slide block shim
14	0161335	2	1/4 inch hydraulic hose
15	0161488	1	Wire harness, boom - 12 gauge/8 conductor
16	0161464	1	Wire harness, boom - 18 gauge/12 conductor
17	0163067	1	Wire harness, boom - 18 gauge/19 conductor
18	3011203	1	Wire, 12 gauge/3 conductor x 66 feet long
19	0160909	1	Side block
20	5569890	2	Machine screw 3/8-16 x 1 inch long socket flat head
21	5560033	2	Nut 3/8-16 self locking
22	0160897	1	Tip end bracket
23	970259	2	Capscrew 5/16-18 x 1 inch long hex head grade 5
24	970299	2	Capscrew 5/16-18 x 2 inch long hex head grade 5
25	0161627	1	Wire harness, electric circuit
26	0161868	1	Hose clamp



TITLE Power trak

Snorkel model ATB 46e

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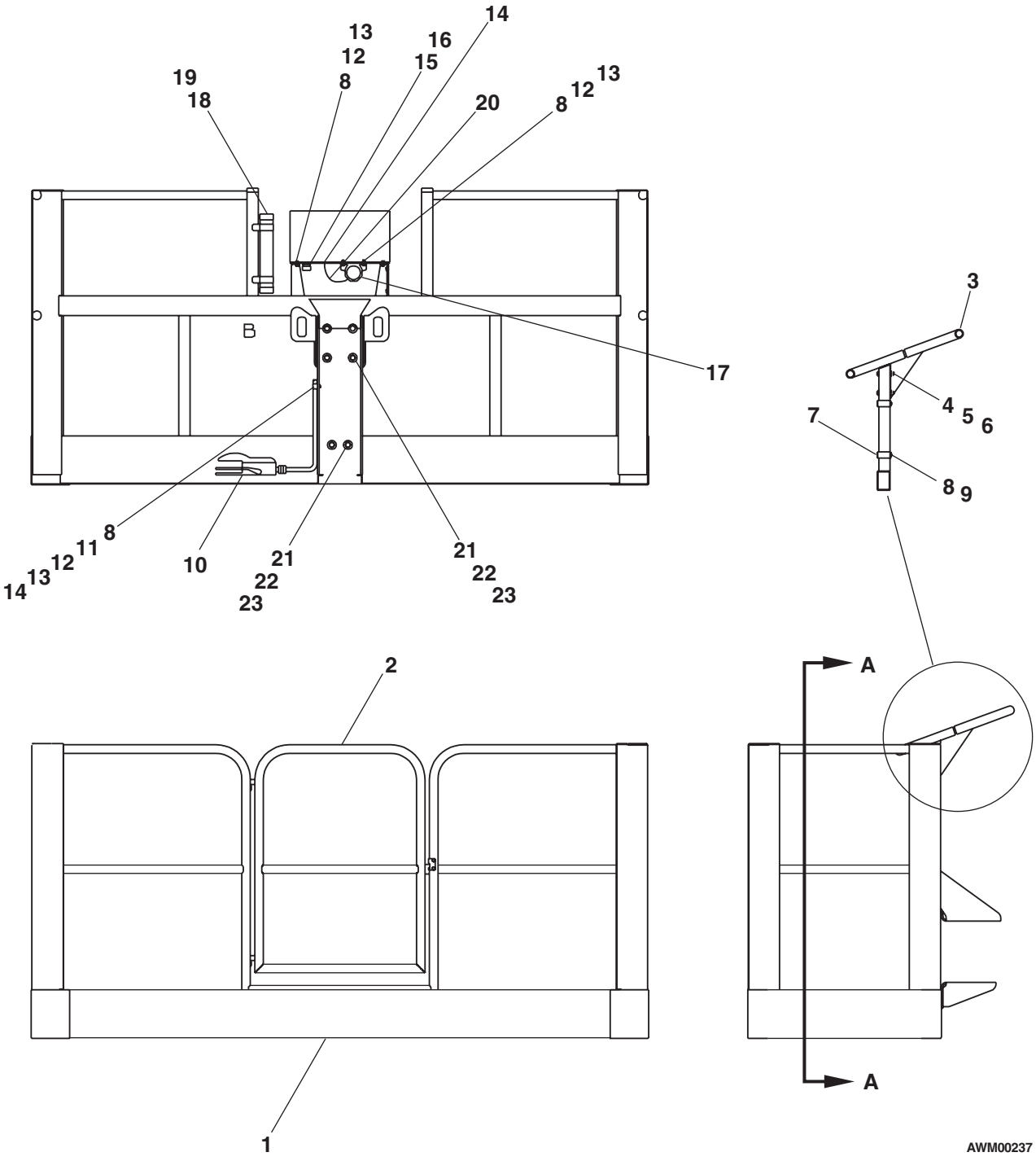
Platform

item	part no	qty	description
1		1	Platform - (consult factory)
2		1	Platform gate - (see page 1-28 for proper platform gate)
3	0161652	1	Upper control box handrail
4	5560033	6	Nut 3/8-16 self locking
5	970529	4	Capscrew 3/8-16 x 2-1/2 inch long hex head grade 5
6	986299	8	Washer 3/8 medium flat
7	5093013	2	Clamp
8	986019	14	Washer 1/4 medium flat
9	978629	2	Capscrew 1/4-20 x 1/2 inch long hex head self tapping
10	0161680	1	Platform foot switch - (see page 3-17 for parts breakdown)
11	5093004	1	Clamp
12	970029	7	Capscrew 1/4-20 x 3/4 inch long hex head grade 5
13	984069	7	Nut 1/4-20 hex
14	987099	2	Washer 1/4 medium lock
15	3040110	1	Connector locknut
16	3040116	1	Connector
17	480652	1	Siren, tilt alarm
18	0101397	1	Document tube
19	7050003	2	Cap, document tube
20	0070709	1	Jumper wire
21	970909	6	Capscrew 1/2-13 x 1-1/2 inch long hex head grade 5
22	986359	12	Washer 1/2 medium flat
23	984069	6	Nut 1/2-13 hex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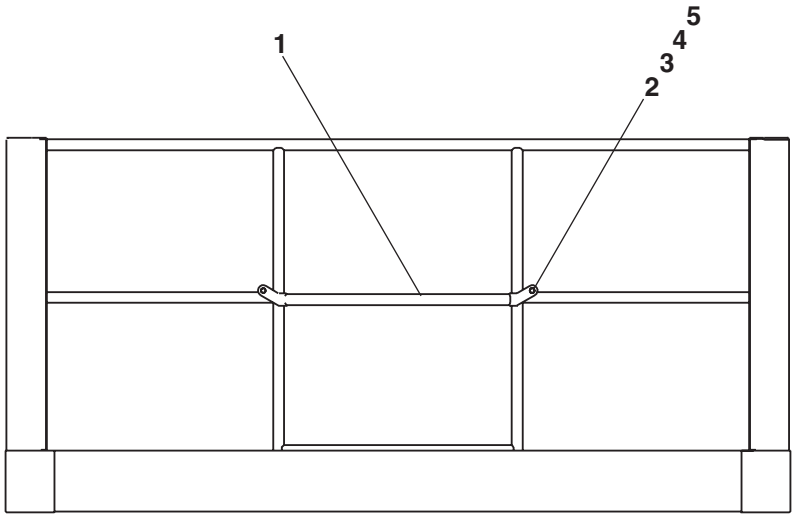
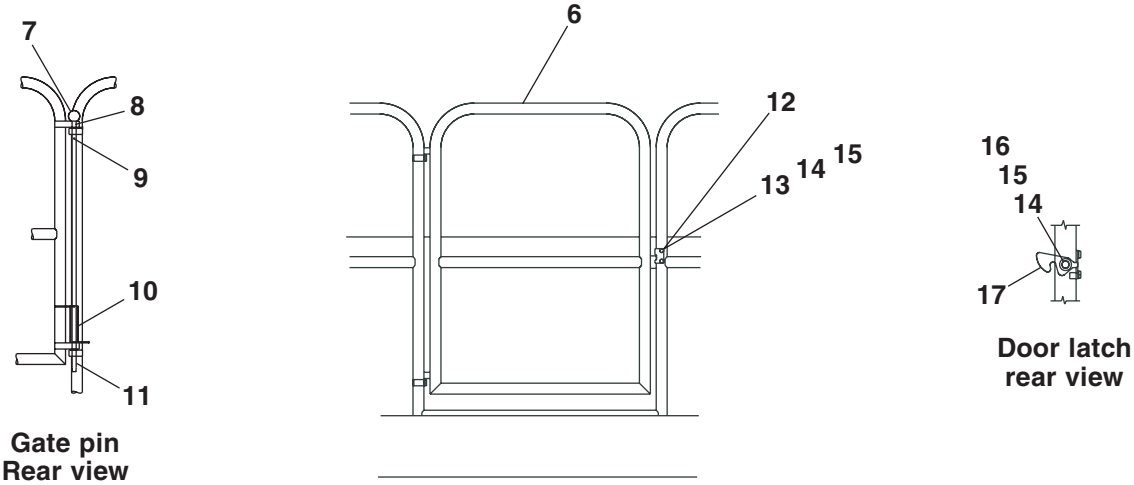
Platform gate

item	part no	qty	description
			Gravity gate for 5, and 6 foot aluminum platforms
	016117728	1	Gravity gate service kit - (kit includes items 1 through 5)
1	0161177	1	Gravity gate, aluminum platform
2	0161182	2	Roller, aluminum gravity gate
3	0161184	2	Roller spacer, aluminum gravity gate
4	970519	2	Capscrew 3/8-16 x 2-1/4 inch long hex head grade 5
5	5560033	2	Nut 3/8-16 self locking
			Swinging gate for 5, and 6 foot aluminum platforms
6	0160970	1	Swinging gate, aluminum platform
7	2667500	1	Knob, gate hinge pin
8	2572007	2	Bearing
9	5560056	1	Roll pin 1/8 inch diameter x 1 inch long
10	0071837	1	Torsion spring
11	0322724	1	Pin, gate hinge
12	0161472	1	Latch stop
13	987099	2	Washer 1/4 medium lock
14	984529	3	Nut sert 1/4-20
15	970099	3	Capscrew 1/4-20 x 5/8 inch long hex head grade 5
16	986019	1	Washer 1/4 medium flat
17	300891	1	Door latch



Gravity gate, aluminum platform



Gate pin
Rear view

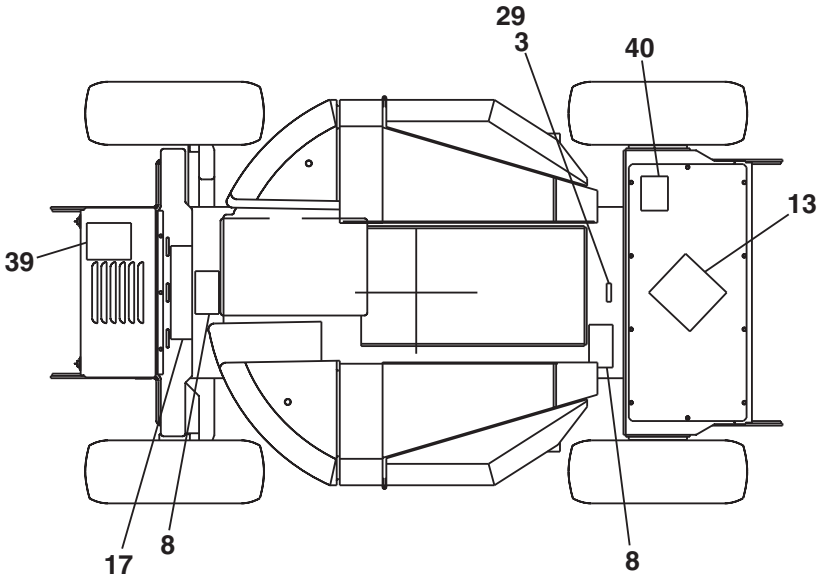
Door latch
rear view

Swinging gate, aluminum platform

AWM00238

Placards and decals

item	part no	qty	description
1	560239	2	Decal, Snorkel brand logo
2	0071425	1	Placard, platform identification
3	5560655	14	Pop rivet #AD32-ABS
4	0071927	1	Decal, hydraulic oil
5	0072277	2	Placard, lug nut torque
6	0072531	1	Decal, danger electrical hazard
7	0073224	1	Decal, notice manual reorder
8	0073298	2	Placard, danger foam filled tires
9	0073585	2	Decal, made in USA
10	0074209	1	Placard, pre-start instructions
11		1	Placard, platform capacity - (consult factory)
12	0150448	1	Decal, attach fall restraint
13	0150452	1	Decal, directional arrows forward/reverse
14	0150602	4	Decal, danger descending boom
15	5560080	4	Bumper
16	451986	1	Placard, danger do not alter switch
17	0151917	1	Decal, directional arrows
18	0101384	2	Decal, lug nut torque
19	0162551	2	Decal, Snorkel brand logo
20	0070901	1	Placard, caution serial number
21	0161205	2	Placard, danger electrical hazard
22	0181562	1	Placard, ANSI standard
23	0161819	1	Decal, emergency lowering procedures
24	5560285	1	Trimlock 60 inch long
25	0323896	2	Decal, danger electrical hazard
26	0323897	1	Decal, danger you must not operate
27	0323899	2	Decal, danger electrical hazard
28	0161329	1	Decal, patents applied for
29	0150606	1	Decal, 125 volt 15 amp power to platform
30	0070921	1	Placard, 125 volts 15 amps
31	0162337	1	Decal, emergency lowering procedures
32	0083427	4	Decal, lift/tie down symbol
33	0074311	5	Decal, danger cylinder failure - (1 per cylinder)
34	0073492	1	Decal, rotate while greasing
35	7030004	2	Decal, OmniQuip logo
36	0162924	1	Decal, lift/tie down location
37	0161178	2	Decal, ATB 46e logo
38	0161215	2	Decal, battery service instructions
39	0163173	1	Decal, battery charging instructions
40	0161213	1	Decal, danger electrical hazard
41	416836	1	Decal, battery charge - (115 volt charger)
	461066	1	Decal, battery charge - (230 volt charger)
42	0181655	1	Decal, caution move control handle slowly
43	467376	2	Decal, EE logo
44	0162280	1	Placard, turn key off
45	0161699	1	Decal, Caution do not run engine - (used with sandblast option)
46	0161699	1	Decal, Caution do not run engine - (used with air line to platform option)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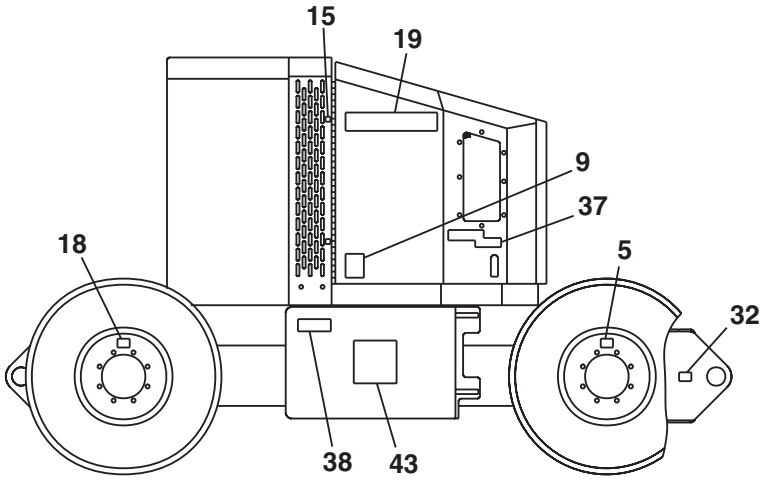
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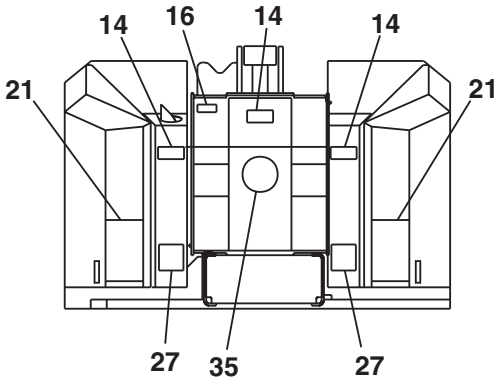
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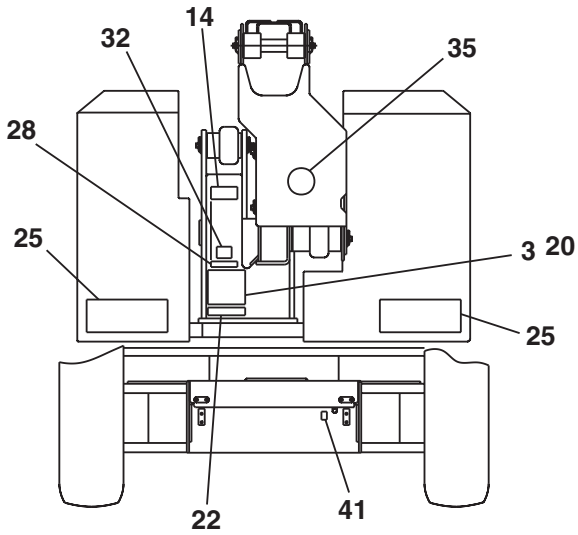
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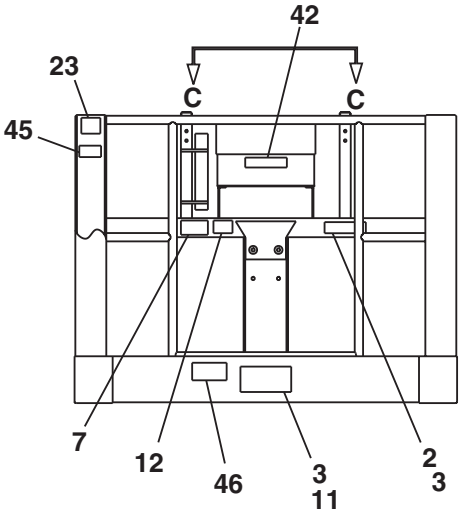
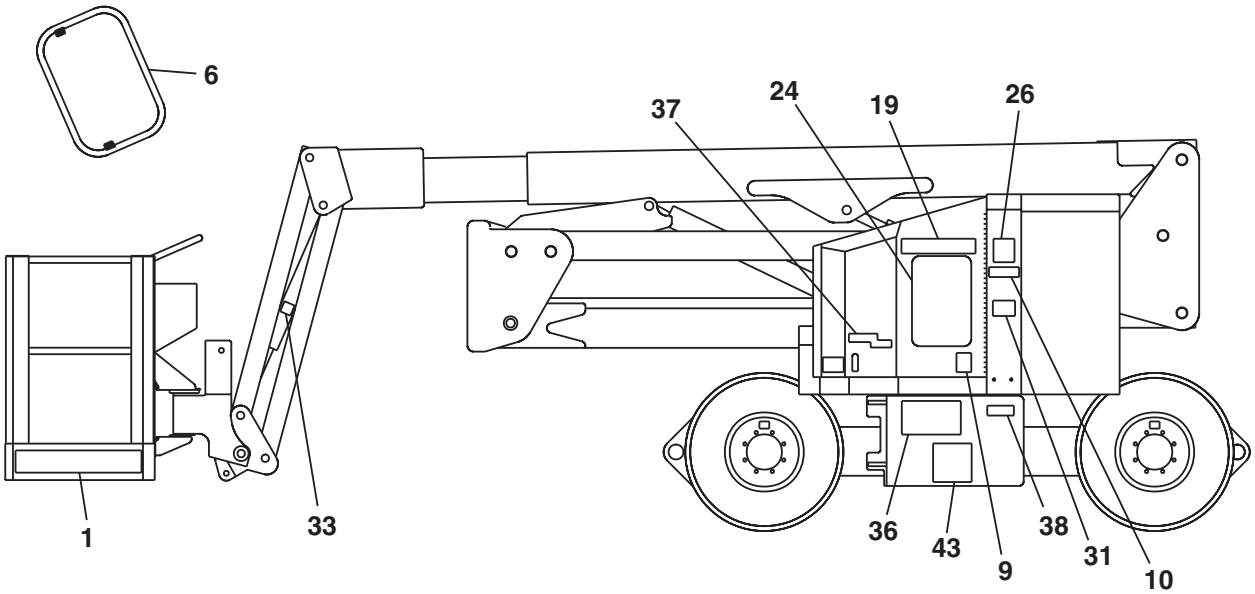
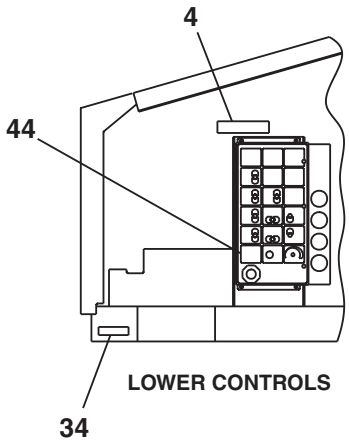
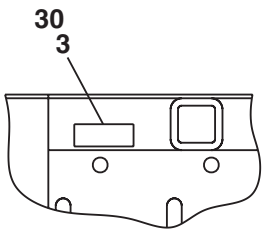






LOWER CONTROLS

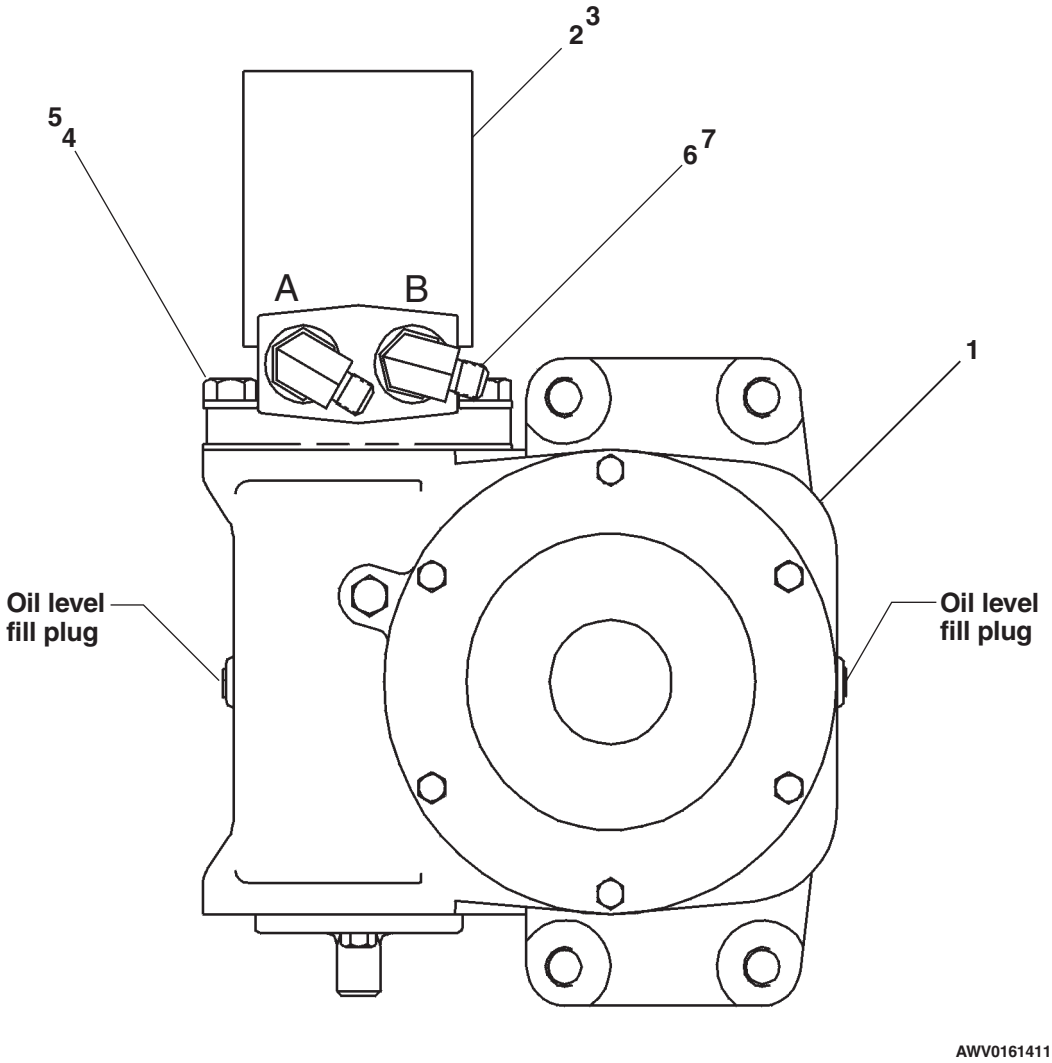


VIEW C-C

AWA16015V-3

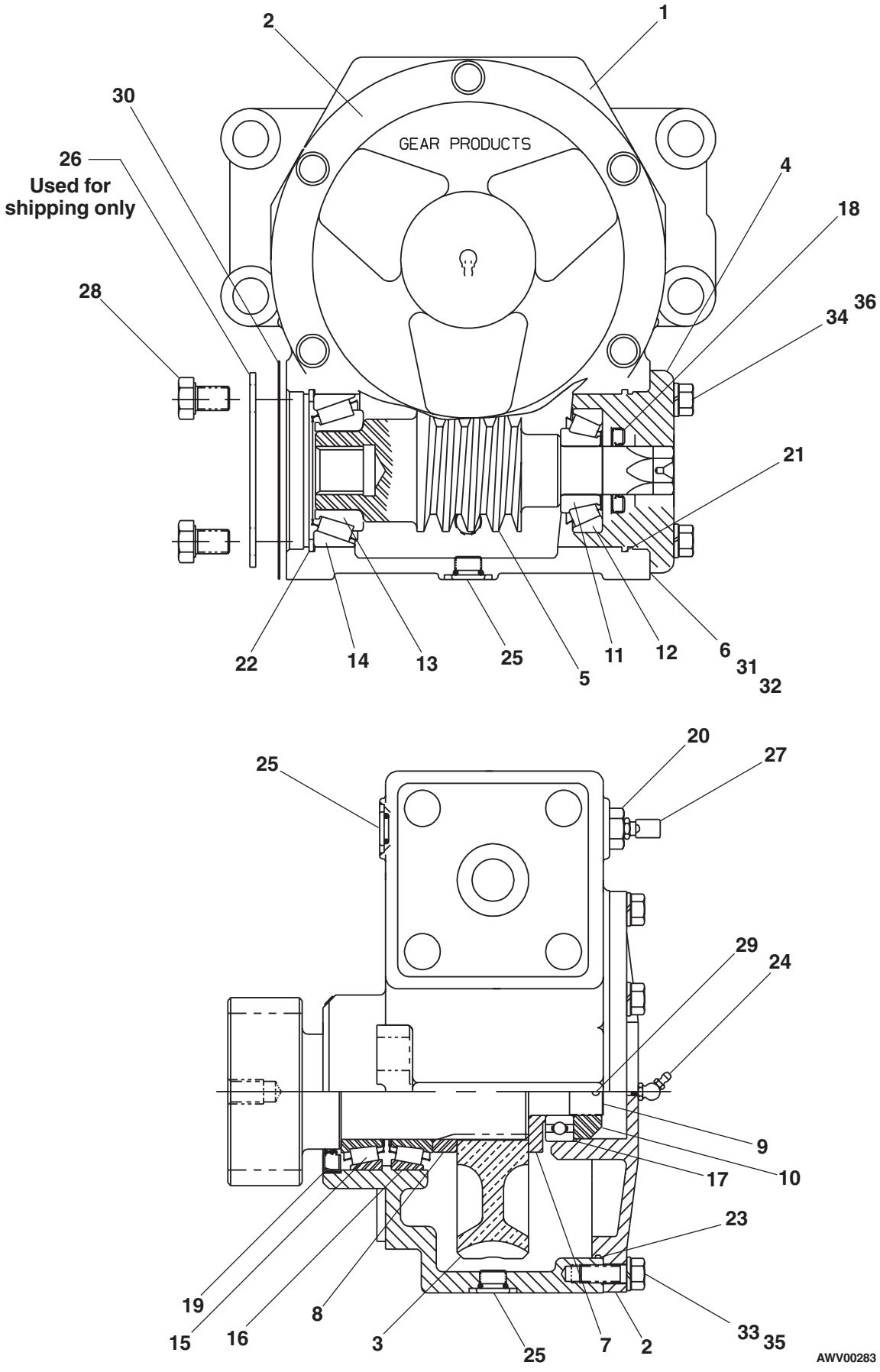
Swing drive

item	part no	qty	description
	0161411	1	Swing drive, complete
1	0160545	1	Swing drive (see page 1-34 for Gear Products swing drive (see page 1-36 for Perfection Gear swing drive) (see page 1-38 for Tulsa Winch swing drive)
2	6030026	1	Swing drive motor
	8230073	1	Seal repair kit
3	7110152	1	O-ring
4	987439	2	Washer 1/2 medium lock
5	5560087	2	Capscrew 1/2-13 x 1-1/4 inch long self locking
6	5037005	2	Swivel nut 90° elbow
7	5065726	2	Straight thread adapter



Swing drive, Gear Products

item	part no	qty	description
	0160545	1	Swing drive, Gear Products
	0151004		Seal repair kit - (kit includes items 18, 19, 21, 23, 30, 31 and 32)
1	0162638	1	Main housing
2	0162639	1	Cover
3	8070216	1	Worm gear
4	0162641	1	Retainer bearing
5	0162642	1	Worm gear
6	0162643	4	Shim, .005 inch thick
7	0162644	1	Spacer
8	0162645	1	Spacer
9	8070252	1	Output shaft
10	8070002	1	Castel nut
11	0162648	1	Bearing cone
12	0162649	1	Bearing cup
13	0162650	1	Bearing cone
14	0162651	1	Bearing cup
15	0162652	2	Bearing cone
16	0162653	2	Bearing cup
17	0162654	1	Ball bearing
18	8070262	1	Oil seal
19	0162656	1	Oil seal
20	0162657	1	Bushing
21	0163038	1	O-ring
22	0162659	1	Snap ring
23	8070214	1	O-ring
24	0162661	1	Grease zerk
25	0163039	3	Hex plug
26	0163026	1	Cover - (not a service part, used for shipping only)
27	0162662	1	Vent plug
28	970889	2	Capscrew 1/2-13 x 1 inch long hex head grade 5
29	988199	1	Cotter key 1/8 inch diameter x 1-1/2 inch long
30	7190005	1	Gasket
31	0162664	1	Shim, 1/64 inch thick
32	0162747	1	Shim, 1/32 inch thick
33	970469	6	Capscrew 3/8-16 x 1 inch long hex head grade 5
34	970849	4	Capscrew 1/2-13 x 1-1/4 inch long hex head grade 5
35	5560169	6	Washer 5/8 hard flat ASTM-F436
36	5560168	4	Washer 1/2 hard flat ASTM-F436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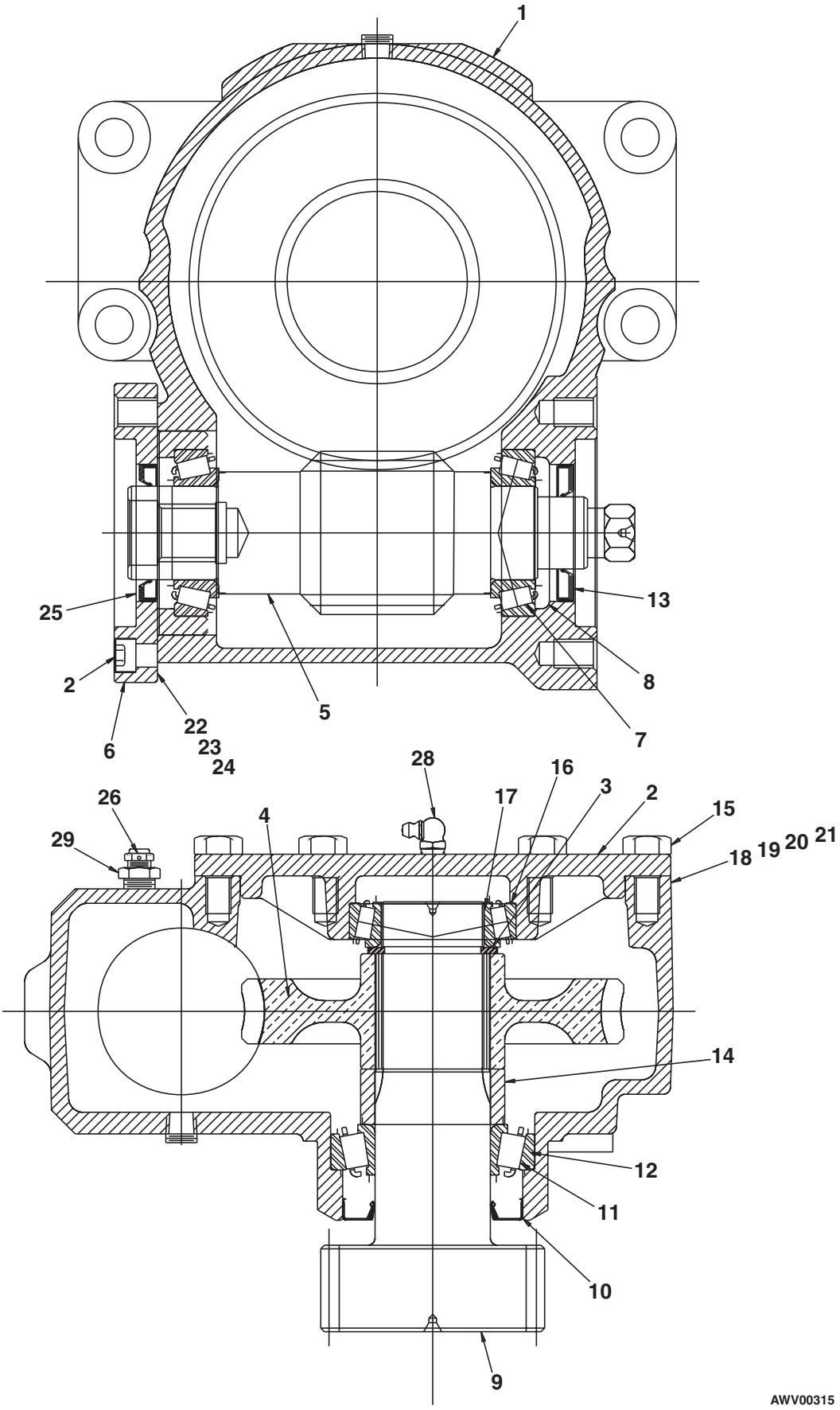
Swing drive, Perfection Gear

item	part no	qty	description
	0160545	1	Swing drive, Perfection Gear
	0163022	1	Seal repair kit - (kit includes items 10, 13, and 18 through 25)
1	0163001	1	Housing
2	0163002	1	Gear cap
3	0163003	1	Snap ring
4	0163004	1	Worm gear
5	0163005	1	Worm
6	0163006	1	Motor adapter
7	0172035	2	Bearing cup
8	0172036	2	Bearing cone
9	0163007	1	Pinion
10	0163008	1	Oil seal
11	0163009	1	Bearing cone
12	0163010	1	Bearing cup
13	0163011	1	Oil seal
14	0163012	1	Spacer
15	0163013	6	Capscrew 7/16-14 x 1-1/8 inch long hex head grade 5
16	0163014	1	Bearing cup
17	0163015	1	Bearing cone
18	0163016	2	Shim, .010 inch thick
19	0163017	2	Shim. .0075 inch thick
20	0163018	2	Shim, .005 inch thick
21	0163019	2	Shim, .003 inch thick
22	0172049	2	Shim, .0075 inch thick
23	0172048	2	Shim, .005 inch thick
24	0172047	2	Shim, .003 inch thick
25	0112307	2	Oil seal
26	0172053	1	Pressure vent plug
27	0163020	4	Capscrew 3/9-16 x 1 inch long socket head
28	0163021	1	Grease fitting, 1/8 NPT 90°
29	0172054	1	Reducer bushing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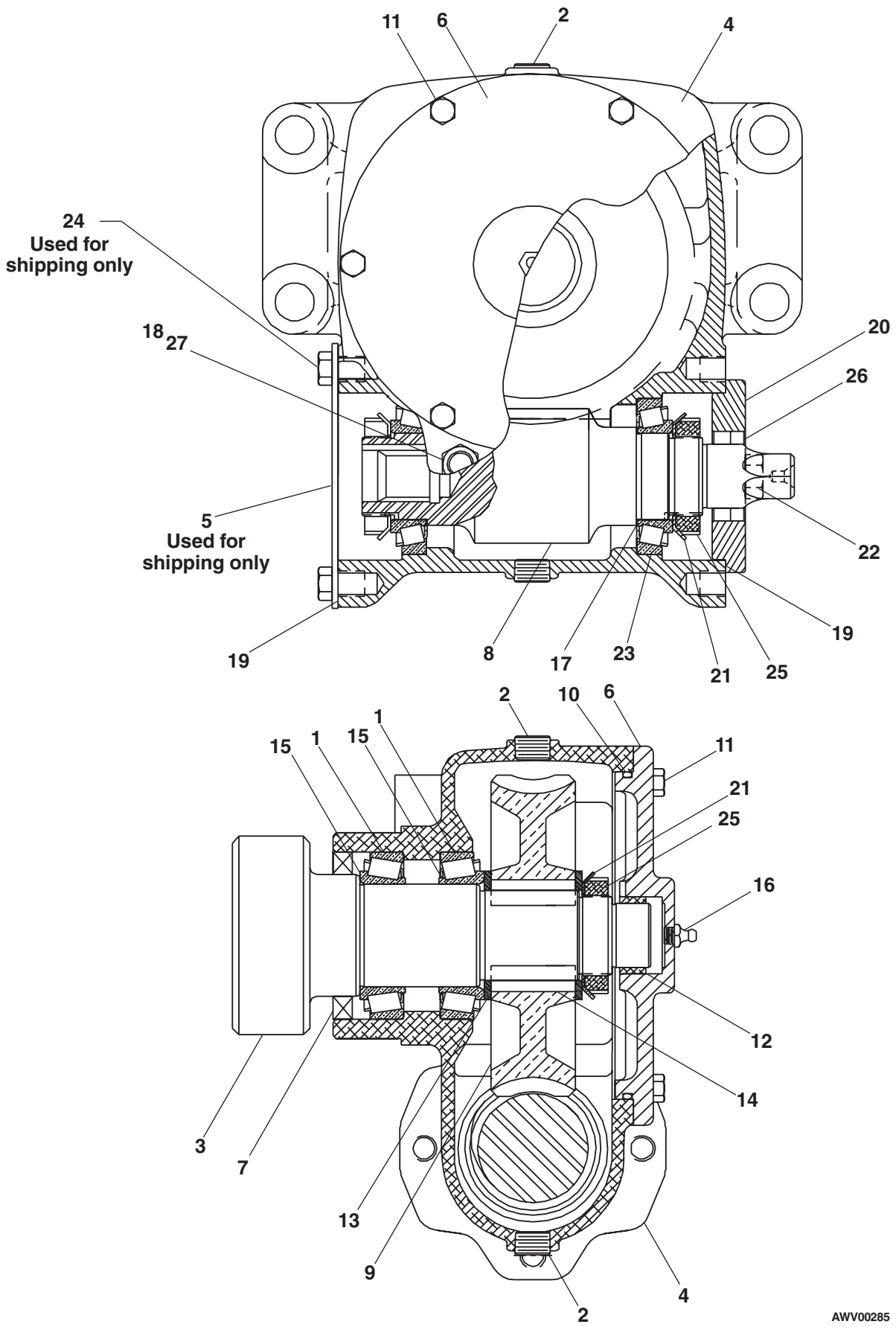
AWV00315

Swing drive, Tulsa Winch

item	part no	qty	description
	0160545	1	Swing drive, Tulsa Winch
	8200058	1	Seal repair kit - (kit includes items 7, 10, 19 and 26)
1	8200021	2	Bearing cup
2	8200022	2	Oil fill plug 3/8 NPT hex socket
3	8200023	1	Output shaft
4	8200024	1	Housing
5	8200025	1	Protector - (not a service part, used for shipping only)
6	8200026	1	Cover
7	8200027	1	Oil seal
8	8200028	1	Worm
9	8200029	1	Gear
10	8200030	1	O-ring
11	970239	6	Capscrew 5/16-18 x 3/4 inch long hex head grade 5
12	8200032	1	Bushing
13	8200033	2	Thrust washer
14	8200034	2	Key
15	8200035	2	Bearing cone
16	8200036	1	Grease fitting
17	8200037	2	Bearing cone
18	8200038	1	Breather
19	8200039	2	Gasket
20	8200040	1	End cap
21	8200041	3	Lockwasher
22	970889	2	Capscrew 1/2-13 x 1 inch long hex head grade 5
23	8200043	2	Bearing cup
24		2	Capscrew - (not a service part, used for shipping only)
25	8200044	3	Locknut
26	8200042	1	Oil seal
27	8200031	1	Pipe bushing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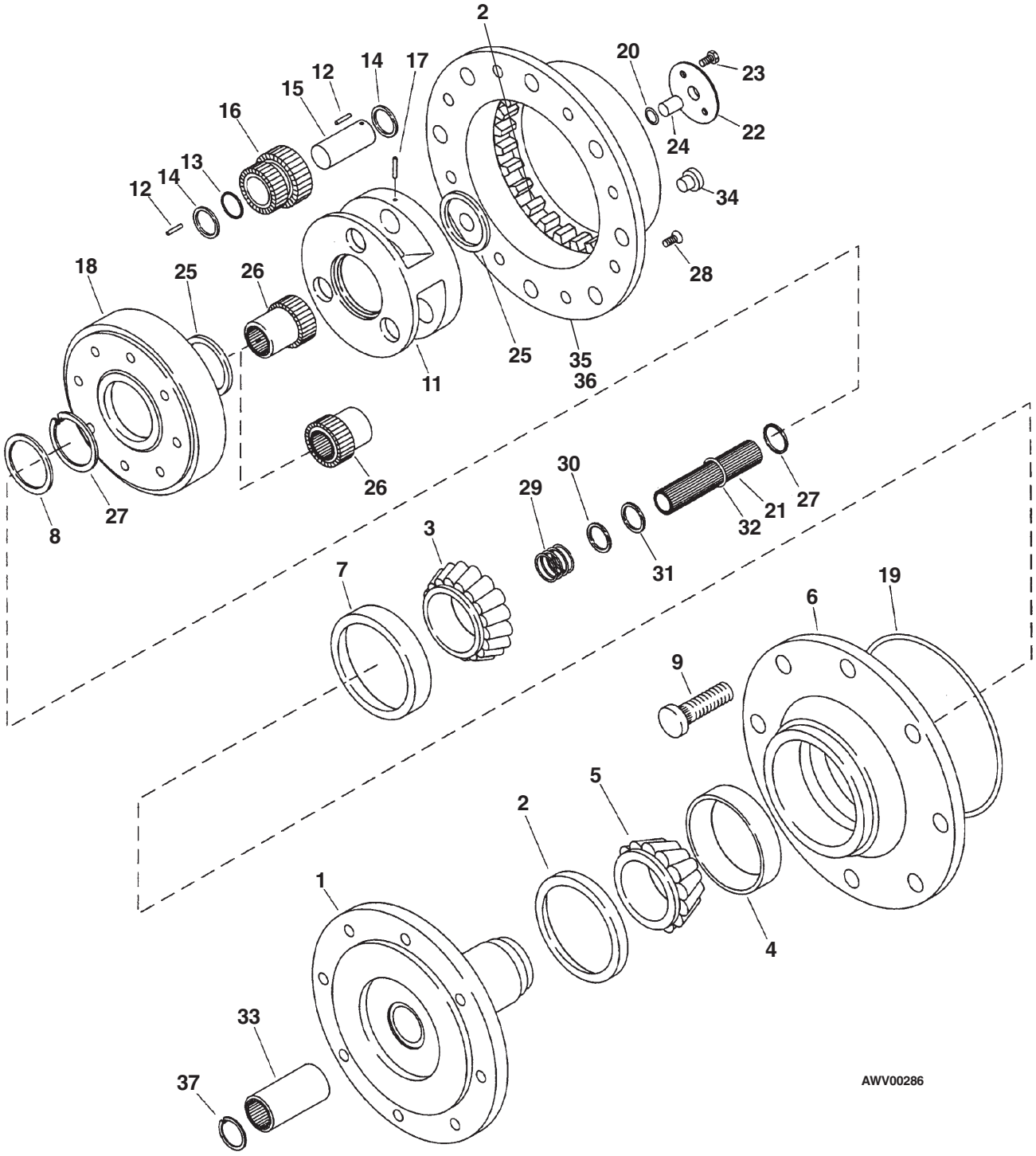
Gear hub - Fairfield

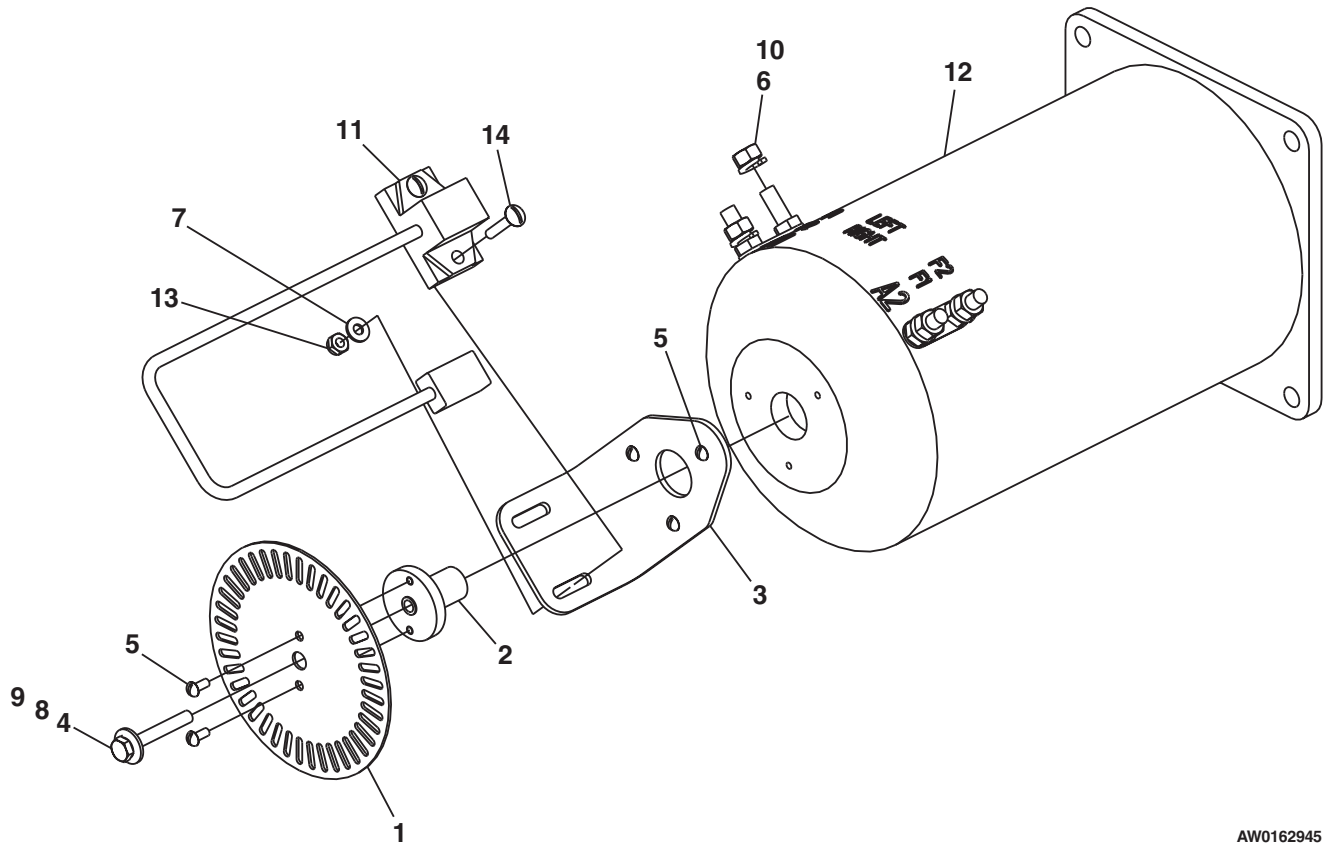
item	part no	qty	description
	0160500	1	Gear hub - Fairfield
1	8060144	1	Spindle
2	8060150	1	Lip seal
3	8060146	1	Bearing cone
4	8060147	2	Bearing cup
5	8060148	1	Bearing cone
6	8060145	1	Housing
7	8060149	1	Thrust washer
8	8060164	1	Retaining ring, external
9	8060143	9	Stud
10	8060158	1	Ring gear
11	8050155	1	Carrier
12	8060161	96	Needle bearing
13	8060160	3	Thrust spacer
14	8060154	6	Washer, flat tanged
15	8060153	3	Planet shaft
16	8060156	3	Cluster gear
17	8060166	3	Roll pin
18	8060157	1	Internal gear
19	8060151	1	O-ring
20	8060179	1	O-ring
21	8060170	1	Input shaft
22	8060177	1	Disengage cap
23	8060178	2	Bolt, hex head
24	8060176	1	Disengage rod
25	8060159	2	Thrust washer
26	8060152	1	Sun gear
27	8060162	1	Thrust washer
28	8060168	3	Bolt, flat head hex socket
29	8060173	1	Spring
30	8060172	1	Thrust washer
31	8060165	1	Retaining ring, internal
32	8060174	1	Retaining ring, external
33	8060171	1	Coupling
34	8060169	2	Pipe plug
35	8060163	1	Plate
36	8060167	4	Drive screw
37	8060175	1	Retaining ring, internal

Gear hub - Fairfield



Motor, electric drive

item	part no	qty	description
	0162945	1	Motor, electric drive
1	0163052	1	Speed sensor wheel
2	0163053	1	Speed sensor hub
3	0163061	1	Speed sensor bracket
4	969989	1	Capscrew 1/4-20 x 1-3/4 inch long hex head grade 5
5	974429	5	Machine screw #8-32 x 3/8 inch long round head
6	984089	4	Nut 5/16-18 hex
7	986009	2	Washer #10 medium flat
8	986019	1	Washer 1/4 medium flat
9	987099	1	Washer 1/4 medium lock
10	987109	4	Washer 5/16 medium lock
11	3020222	1	Speed sensor hall effect
12	3080038	1	Electric motor
13	5560034	2	Nut #10-24 self locking
14	5560673	2	Machine screw #10-24 x 1 inch long truss head



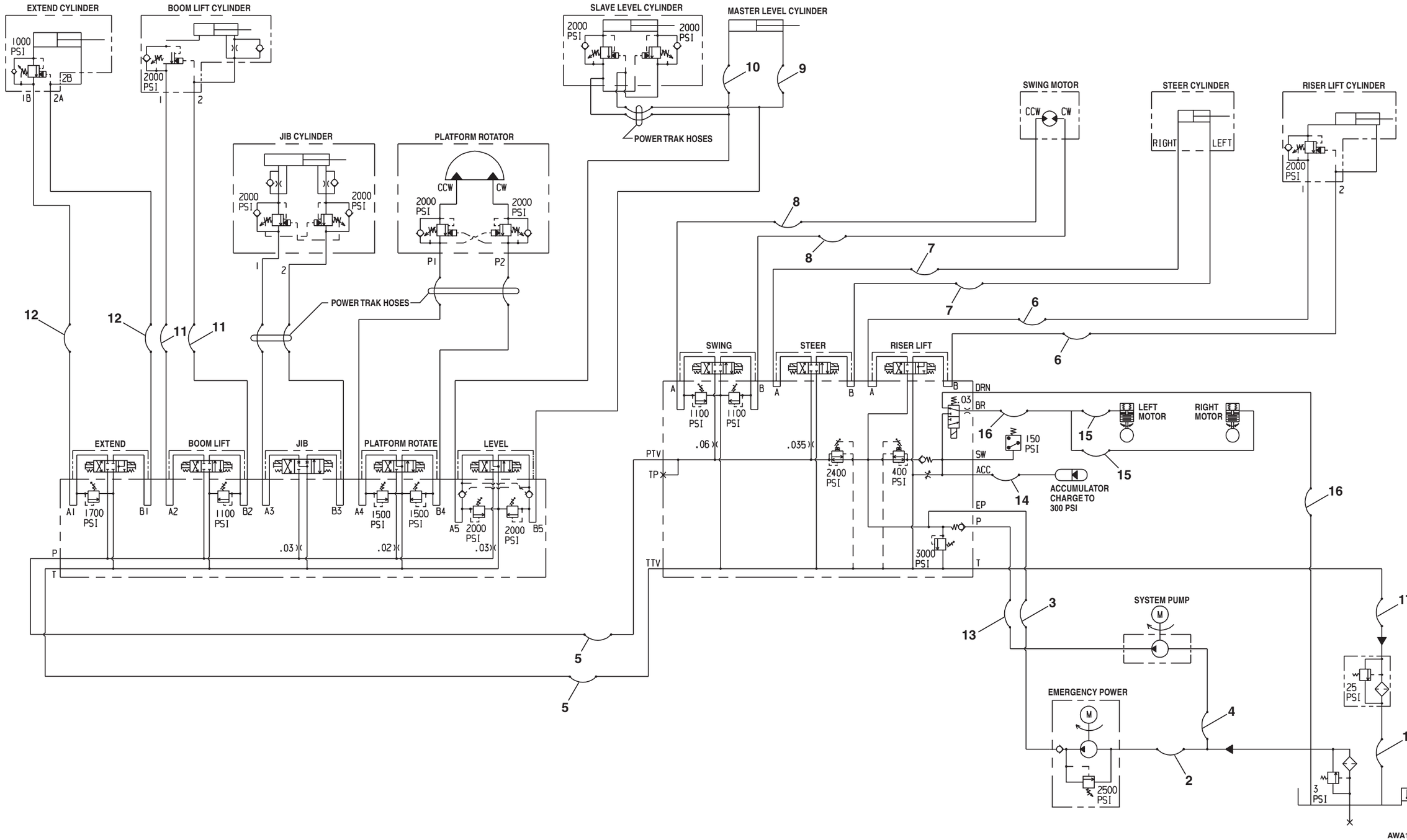
ATB 46e

OmniQuip® TEXTRON

Snorkel® INTERNATIONAL

Hydraulic hoses

item	part no	qty	description
1	0110907	1	3/4 inch hydraulic hose
2	0110732	1	1/2 inch hydraulic hose
3	0161378	1	3/8 inch hydraulic hose
4	0400497	1	3/4 inch hydraulic hose
5	0161395	2	3/8 inch hydraulic hose
6	0161390	2	3/8 inch hydraulic hose
7	0161388	2	1/4 inch hydraulic hose
8	0050400	2	3/8 inch hydraulic hose
9	0161393	1	1/4 inch hydraulic hose
10	0161394	1	1/4 inch hydraulic hose
11	0161399	2	3/8 inch hydraulic hose
12	0161398	2	3/8 inch hydraulic hose
13	0070789	1	3/8 inch hydraulic hose
14	0020280	1	1/4 inch hydraulic hose
15	0070765	2	1/4 inch hydraulic hose
16	0111287	2	1/4 inch hydraulic hose
17	0151171	1	1/2 inch hydraulic hose



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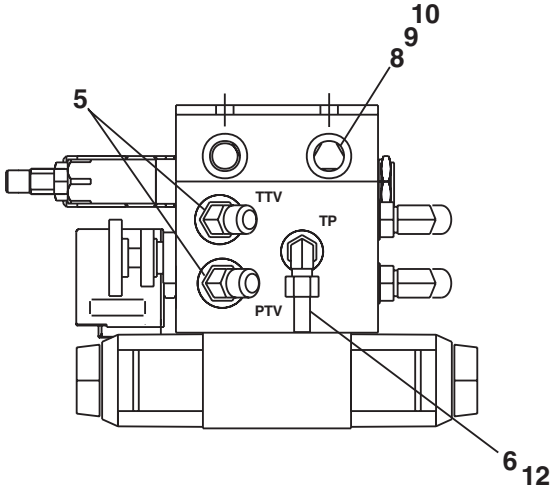
TITLE Hydraulic hoses

Snorkel model ATB 46e

Snorkel INTERNATIONAL

Control valve, 3 station

item	part no	qty	description
	0161255	1	Control valve, 3 station
1	6010932	1	Control valve package, 3 station - (see page 2-6 for parts breakdown)
2	5035306	1	Straight thread 90° elbow
3	5065728	1	Straight thread adapter
4	5035318	1	Straight thread 90° elbow
5	5035705	8	Straight thread 45° elbow
6	5035321	1	Straight thread 90° elbow
7	0161196	2	Bracket, valve mount
8	970239	4	Capscrew 5/16-18 x 3/4 inch long hex head grade 5
9	987109	4	Washer 5/16 medium lock
10	986269	4	Washer 5/16 medium flat
11	5025003	1	Swivel adapter
12	5070005	1	Diagnostic nipple
13	0161835	1	Check valve, .062 inch diameter
14	3020143	1	Pressure switch
15	5065707	1	Straight thread adapter
16	5035305	1	Straight thread 90° elbow
17	0161471	1	Decal set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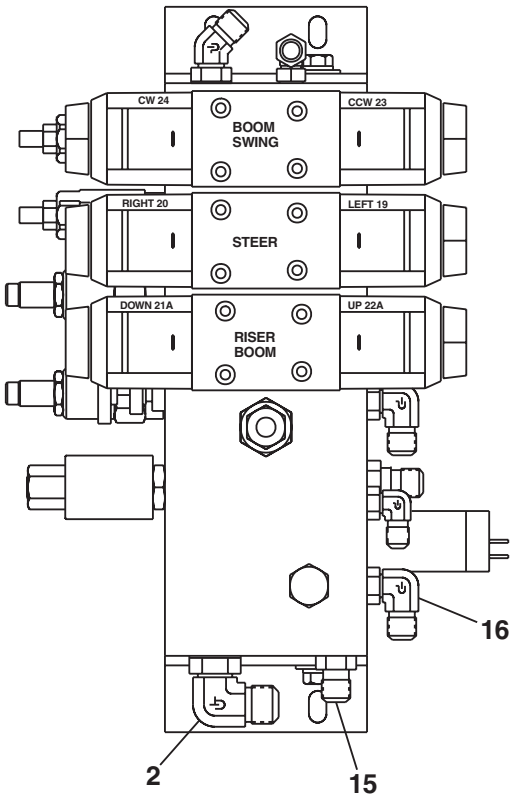
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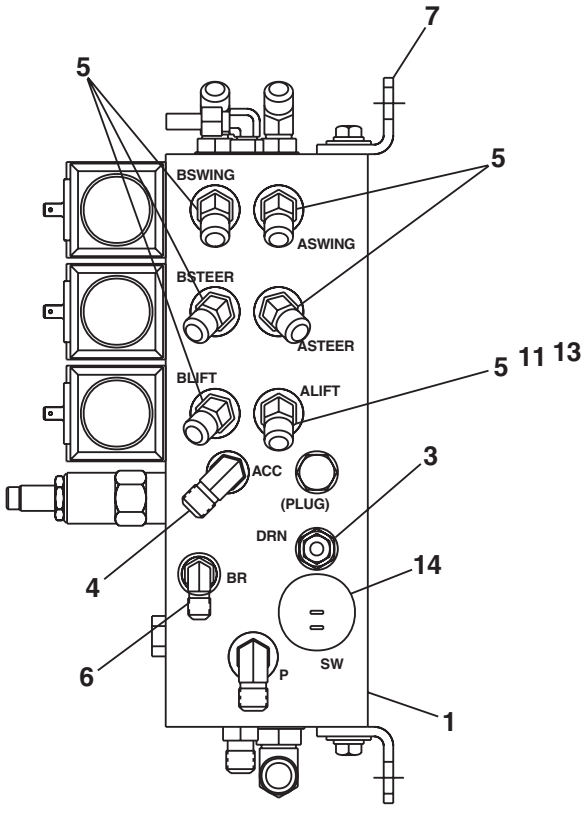
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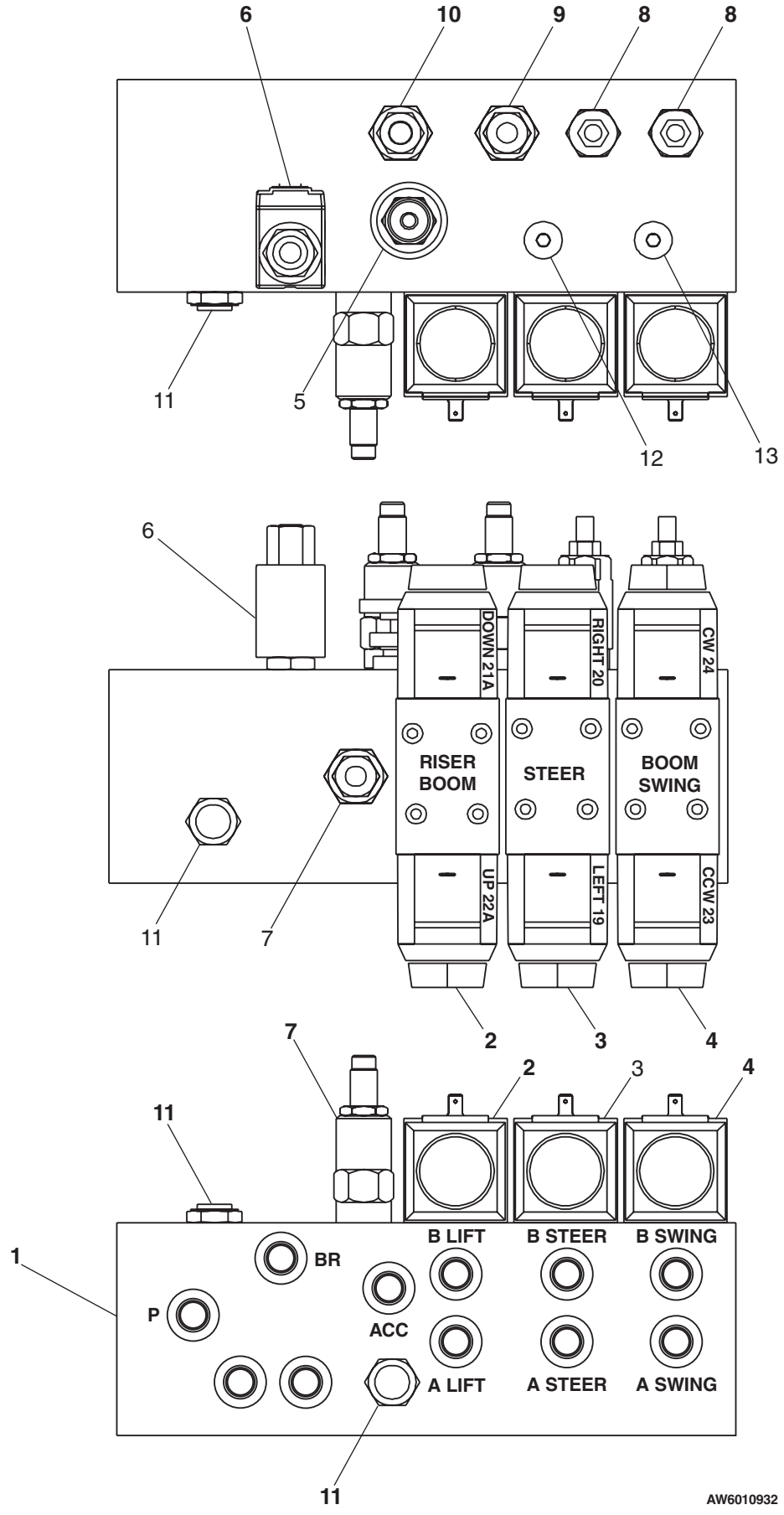
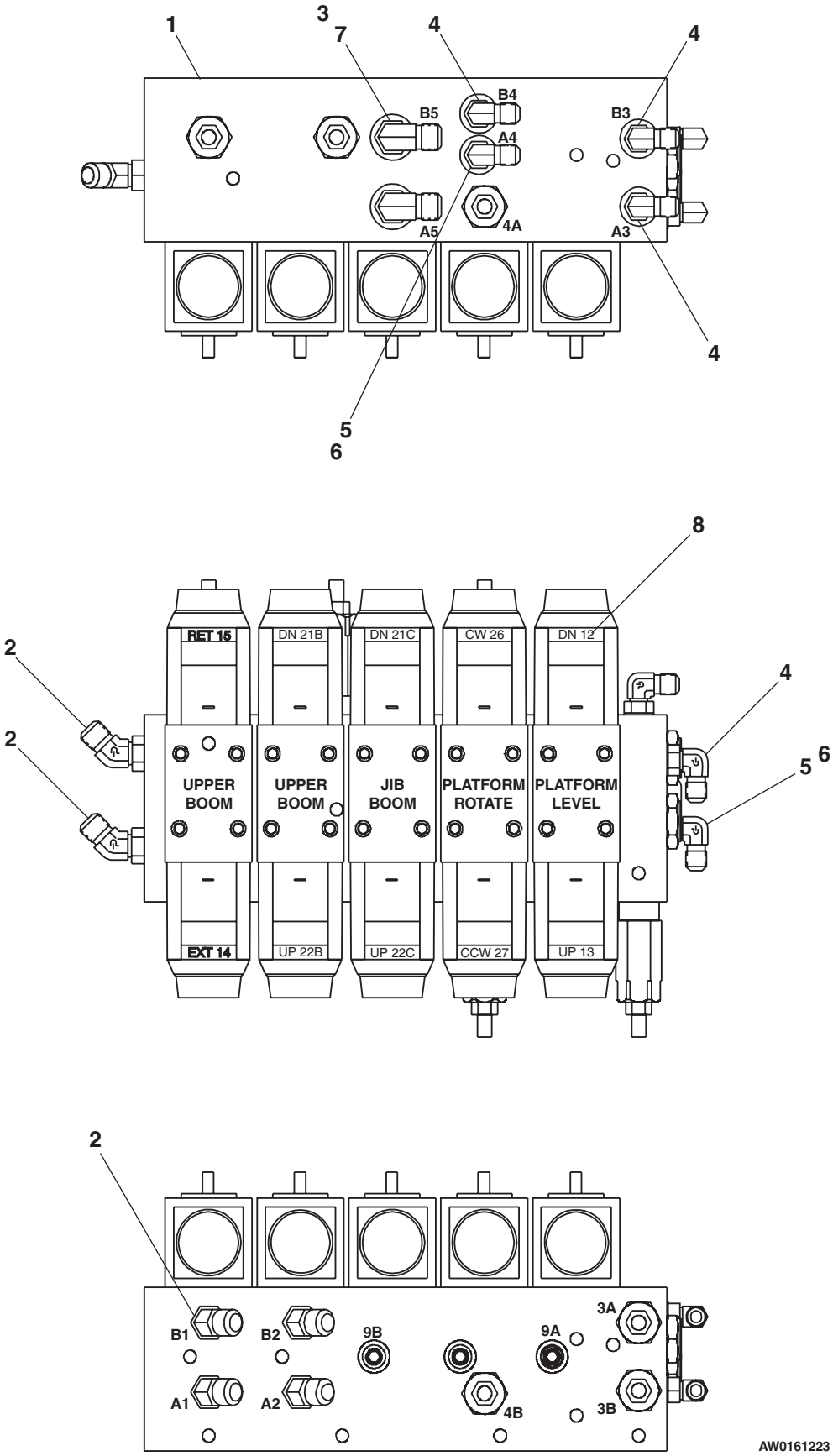
Control valve package, 3 station

item	part no	qty	description
	6010932	1	Control valve package, 3 station
1	6091046	1	Manifold body
2	6091027	1	Riser boom control valve
	6091144	1	Riser boom control valve seal repair kit
	6091145	1	Replacement solenoid, 12 volt DC
3	6010697	1	Steer control valve
	6091144	1	Steer control valve seal repair kit
	6091145	1	Replacement solenoid, 12 volt DC
4	6010697	1	Boom swing control valve
	6091144	1	Boom swing control valve seal repair kit
	6091145	1	Replacement solenoid, 12 volt DC
5	8220044	1	Needle valve, brake release
	6091047	1	Seal repair kit
6	6091048	1	Solenoid valve
	3049865	1	Seal repair kit
7	6091049	1	Pressure relief cartridge valve
	3049866	1	Seal repair kit
8	6091030	2	Pressure relief cartridge valve
	3049853	1	Seal repair kit
9	6091220	1	Pressure reducing cartridge valve
	3049854	1	Seal repair kit
10	6091050	1	Pressure reducing cartridge valve
	3049845	1	Seal repair kit
11	28220045	2	Check valve
	3049853	1	Seal repair kit
12	6091024	1	Orifice plug, .030 inch diameter orifice
13	6091037	1	Orifice plug, .035 inch diameter orifice
14	6091038	1	Orifice plug, .060 inch diameter orifice


6
10
9
8
8
11
5
12
13
6
DOWN 21A
RIGHT 20
CW 24
RISER BOOM
STEER
BOOM SWING
UP 22A
LEFT 19
CCW 23
11
7
2
3
4
7
2
3
4
11
1
BR
P
ACC
B LIFT
B STEER
B SWING
A LIFT
A STEER
A SWING
11
AW6010932

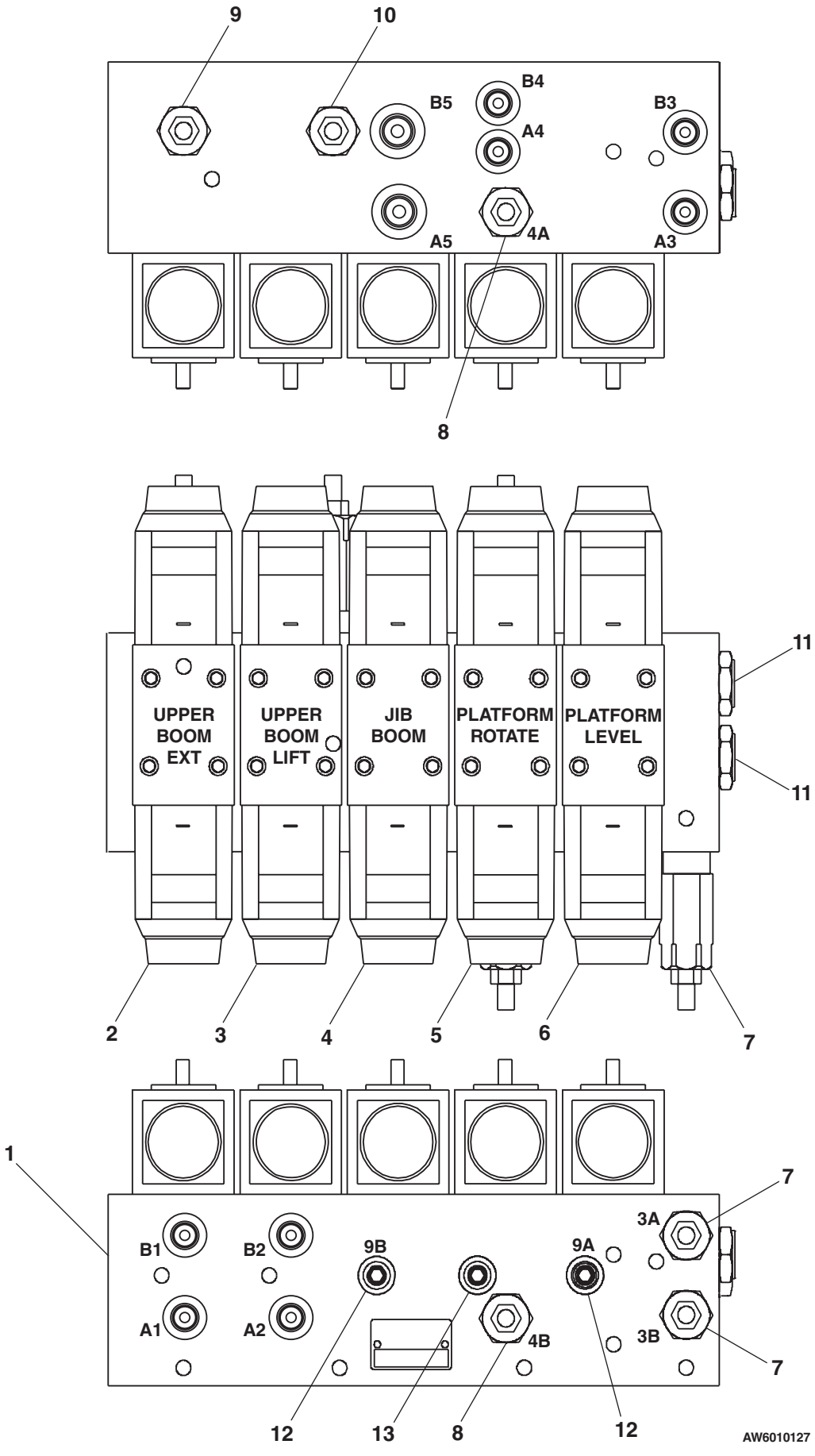
Control valve, 5 station

item	part no	qty	description
	0161223	1	Control valve, 5 station
1	6010127	1	Control valve package, 5 station - (see page 2-10 for parts breakdown)
2	5035705	6	Straight thread 45° elbow
3	5065805	2	Long straight thread adapter
4	5035303	4	Straight thread 90° elbow
5	5065703	2	Straight thread adapter
6	5037003	2	Swivel nut 90° elbow
7	5037005	2	Swivel nut 90° elbow
8	0161471	1	Decal set


1
3
7
4
4
B4
B5
B3
A4
A5
4A
A3
4
5
6
8
2
2
4
5
6
RET 15
DN 21B
DN 21C
CW 26
DN 12
UPPER BOOM
UPPER BOOM
JIB BOOM
PLATFORM ROTATE
PLATFORM LEVEL
EXT 14
UP 22B
UP 22C
CCW 27
UP 13
2
B1
B2
9B
9A
3A
A1
A2
4B
3B
AW0161223

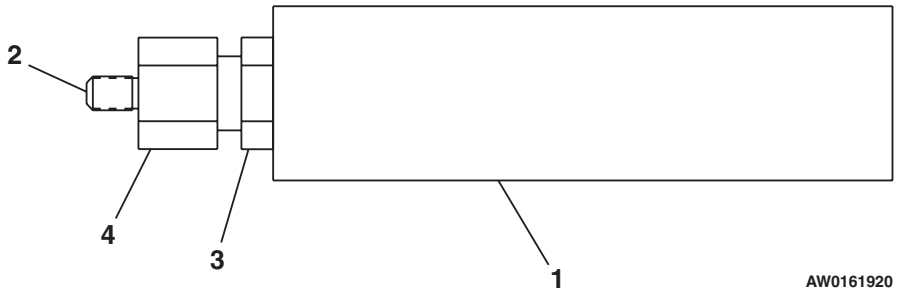
Control valve package, 5 station

item	part no	qty	description
	6010127	1	Control valve package, 5 station
1	6091015	1	Manifold body
2	6091016	1	Upper boom extend control valve - (ATB 50 machines only)
	3040551	2	Replacement solenoid, 12 volt DC
3	6010697	1	Upper boom lift control valve
	3040551	2	Replacement solenoid, 12 volt DC
4	6091017	1	Jib boom control valve
	3040551	2	Replacement solenoid, 12 volt DC
5	6091018	1	Platform rotate control valve
	3040551	2	Replacement solenoid, 12 volt DC
6	6091018	1	Platform level control valve
	3040551	2	Replacement solenoid, 12 volt DC
7	6091019	2	Relief valve cartridge, level - (preset by factory, do not reset)
	3049853	2	Relief valve cartridge seal repair kit
8	6091020	2	Relief valve cartridge, platform rotate - (preset by factory, do not reset)
	3049853	2	Relief valve cartridge seal repair kit
9	6091021	1	Relief valve cartridge, boom lift - (preset by factory, do not reset)
	3049853	1	Relief valve cartridge seal repair kit
10	6091022	1	Relief valve cartridge, extend - (preset by factory, do not reset)
	3049853	1	Relief valve cartridge seal repair kit
11	6091023	2	Check valve cartridge
	3049856	2	Check valve cartridge seal repair kit
12	6091024	2	Orifice plug, .030 inch diameter
13	6091025	1	Orifice plug, .020 inch diameter


9
10
B5
B4
A4
B3
A5
4A
A3
8
UPPER BOOM EXT
UPPER BOOM LIFT
JIB BOOM
PLATFORM ROTATE
PLATFORM LEVEL
11
11
2
3
4
5
6
7
1
B1
B2
A1
A2
9B
9A
4B
3A
3B
7
7
12
13
8
12
AW6010127

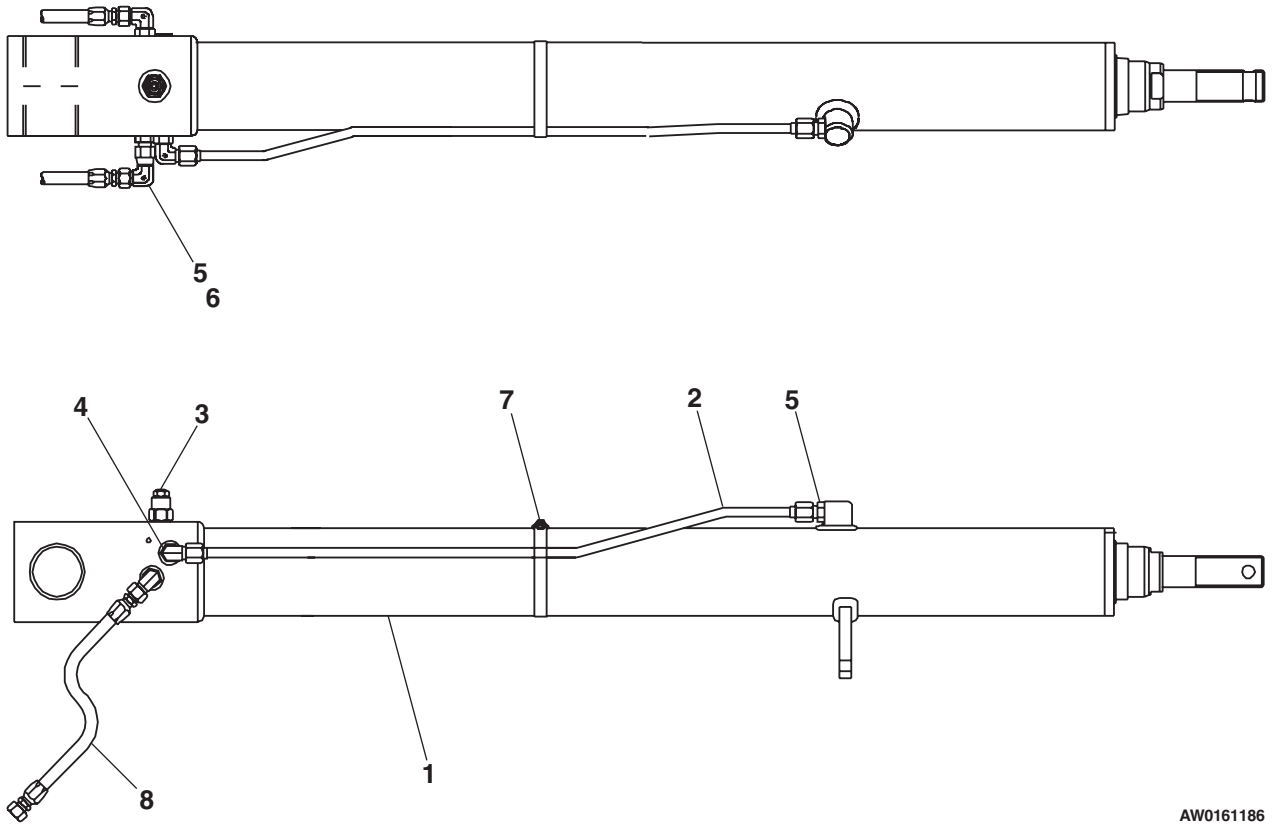
Accumulator

item	part no	qty	description
	0161920	1	Accumulator - (shipped charged)
1	6070006	1	Accumulator - (shipped uncharged, charge to 200 psi with dry nitrogen before use)
2	5064002	1	Tube end reducer
3	5065711	1	Straight thread adapter
4	5063906	1	Fitting nut



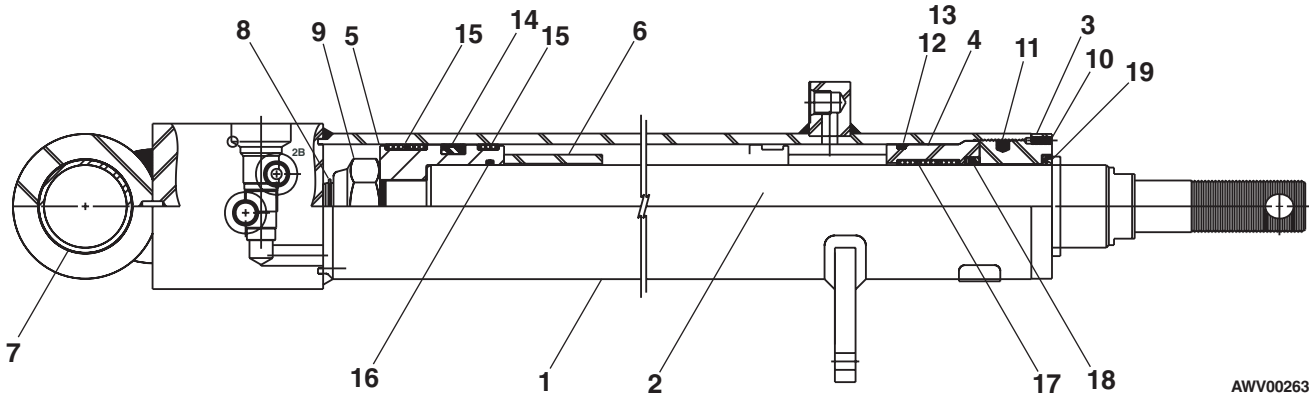
Extension cylinder

item	part no	qty	description
	0161186	1	Extension cylinder
1	0160788	1	Cylinder, extension (see page 2-14 for GBI cylinder) (see page 2-15 for Prince cylinder)
2	0162785	1	Transfer tube
3	6010294	1	Cartridge holding valve - (factory preset, do not reset)
	6091190	1	Seal repair kit
4	5035305	2	Straight thread 90° elbow
5	5065707	2	Straight thread adapter
6	5037005	1	Swivel nut 90° elbow
7	5550050	1	Clamp
8	0161398	2	3/8 inch hydraulic hose



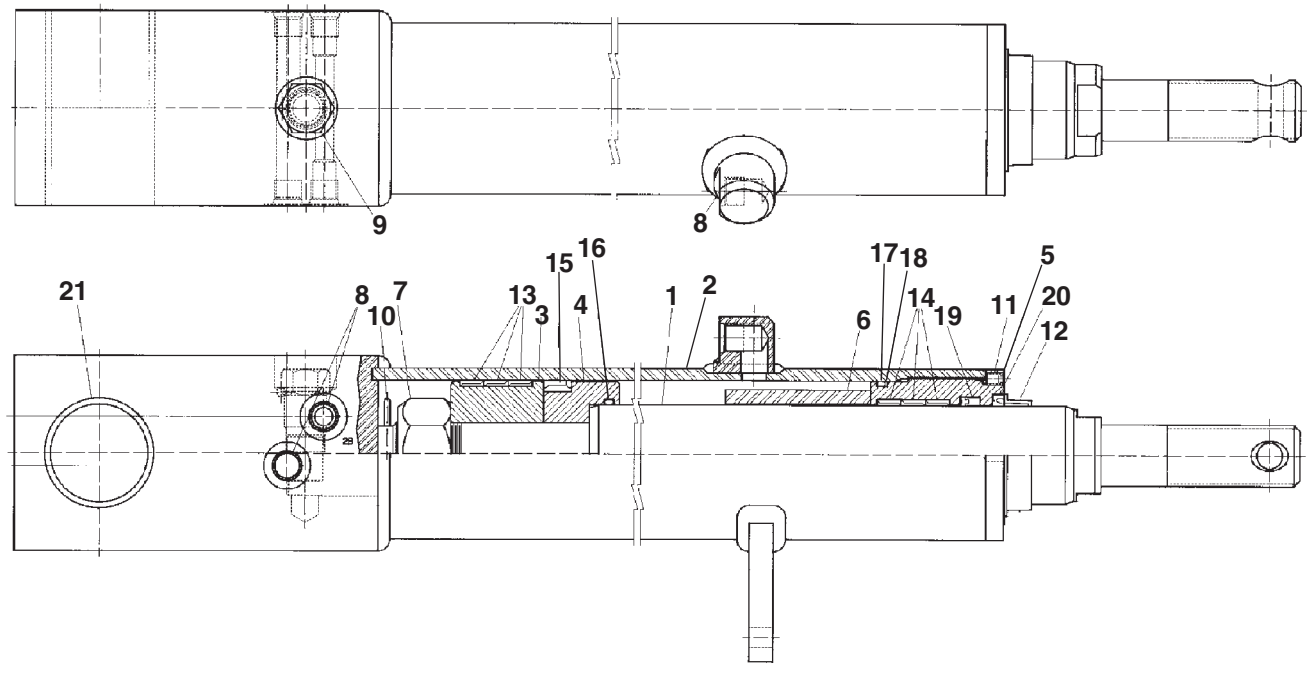
Cylinder, extension - GBI

item	part no	qty	description
	0160788	1	Cylinder, extension - GBI
	8070272	1	Seal repair kit - (kit includes items 11 through 19)
1		1	Tube - (not sold separately)
2	8070579	1	Rod
3	8070545	1	Retainer
4	8070544	1	Bearing
5	8070528	1	Piston
6	8070577	1	Spacer
7	8070519	2	Bushing
8	8070513	1	Retaining ring
9	8070511	1	Nut
10	8070516	1	Set screw
11	Kit item	1	Nylon plug - (not sold separately)
12	Kit item	1	Back-up - (not sold separately)
13	Kit item	1	O-ring - (not sold separately)
14	Kit item	1	Quad seal - (not sold separately)
15	Kit item	2	Wear ring - (not sold separately)
16	Kit item	1	O-ring - (not sold separately)
17	Kit item	2	Wear ring - (not sold separately)
18	Kit item	1	U-ring - (not sold separately)
19	Kit item	1	Wiper - (not sold separately)



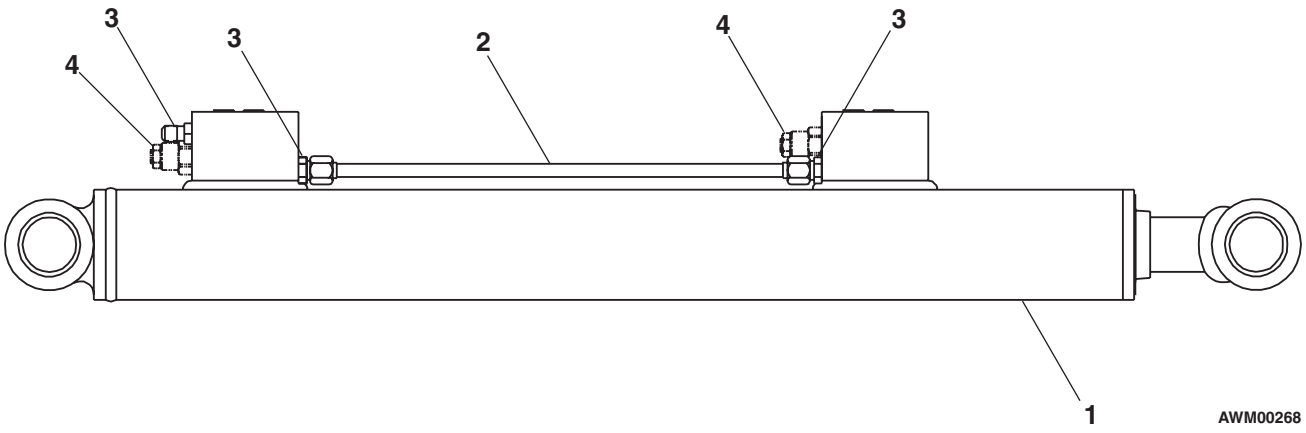
Cylinder, extension - Prince

item	part no	qty	description
	0160788	1	Cylinder, extension - Prince
	8160056	1	Seal repair kit - (kit includes items 13 through 20)
1	8160281	1	Piston rod
2		1	Butt and tube - (not sold separately)
3	8160283	1	Piston
4	8160284	1	Piston
5	8160285	1	Gland
6	8160286	1	Spacer
7	6091082	1	Locknut
8	8160131	5	Port plug
9	8160172	1	Counterbalance cavity plug
10	8160287	1	Cotter pin
11	6091083	1	Set screw
12	8160242	1	Wiper cover
13	Kit item	3	Bearing ring - (not sold separately)
14	Kit item	3	Bearing ring - (not sold separately)
15	Kit item	1	Capped T-seal - (not sold separately)
16	Kit item	1	O-ring - (not sold separately)
17	Kit item	1	O-ring - (not sold separately)
18	Kit item	1	BU-washer - (not sold separately)
19	Kit item	1	Deep Z-seal - (not sold separately)
20	Kit item	1	Wiper - (not sold separately)
21	8160292	2	Bushing



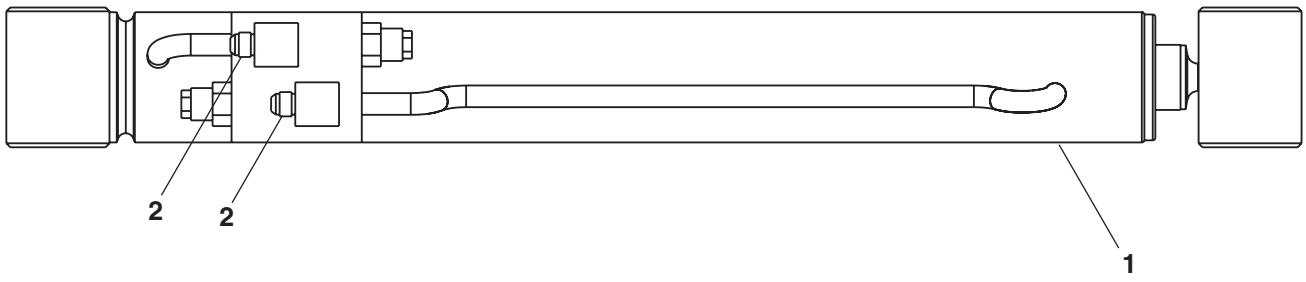
Jib cylinder, GBI or Prince

item	part no	qty	description
	0161187	1	Jib cylinder, GBI or Prince
1	0160813	1	Cylinder, jib
			(see page 2-18 for GBI cylinder)
			(see page 2-19 for Prince cylinder)
2	0160873	2	Transfer tube
3	5065734	6	Straight thread adapter
4	6010488	2	Cartridge counterbalance valve - (factory preset, do not reset)
	6091190	2	Seal repair kit



Jib cylinder, Rosenboom

item	part no	qty	description
	0162795	1	Jib cylinder, Rosenboom
1	0162783	1	Cylinder, jib - Rosenboom - (see page 2-20 for parts breakdown)
2	5035321	2	Straight thread 90° elbow



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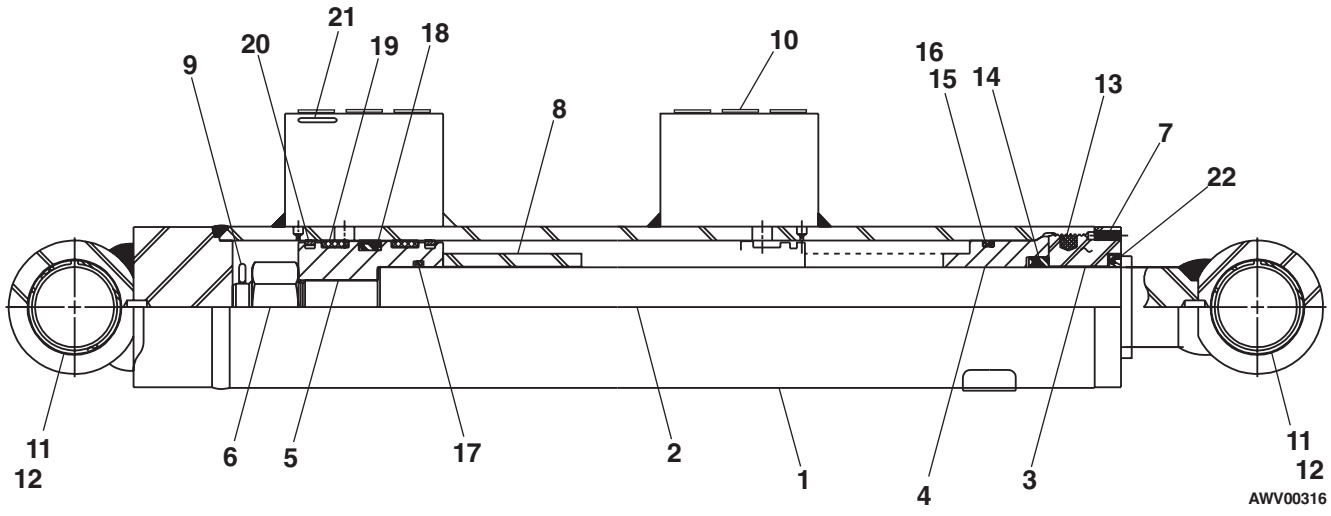
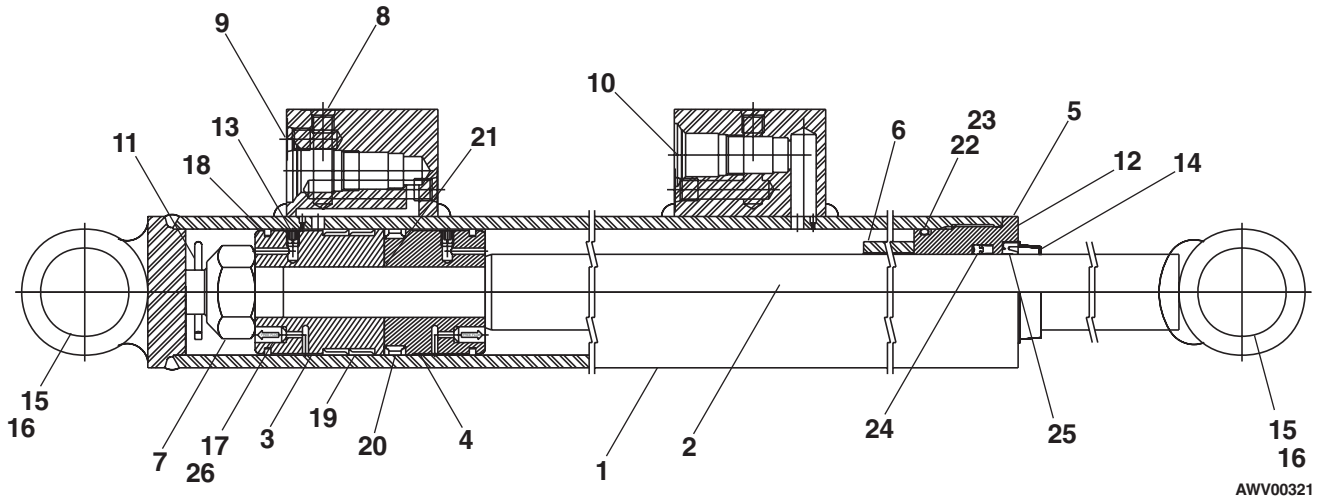
Cylinder, jib - GBI

item	part no	qty	description
	0160813	1	Cylinder, jib - GBI
	0162478	1	Seal repair kit - (kit includes items 13 through 22)
1		1	Case - (not sold separately)
2	6091125	1	Rod
3	6091126	1	Thread ring
4	6091127	1	Head gland
5	6091128	1	Piston
6	6091129	1	Nut
7	6091130	1	Set screw
8	8070888	1	Spacer
9	8070540	1	Snap ring
10	8070542	6	Port plug
11	8070887	2	Bearing spacer
12	561126	4	Bearing
13	Kit item	1	Nylon plug - (not sold separately)
14	Kit item	1	U-cup - (not sold separately)
15	Kit item	1	O-ring - (not sold separately)
16	Kit item	1	Back-up - (not sold separately)
17	Kit item	1	O-ring - (not sold separately)
18	Kit item	1	CST - (not sold separately)
19	Kit item	2	Wear ring - (not sold separately)
20	Kit item	2	Piston ring - (not sold separately)
21	Kit item	6	O-ring - (not sold separately)
22	Kit item	1	Wiper - (not sold separately)



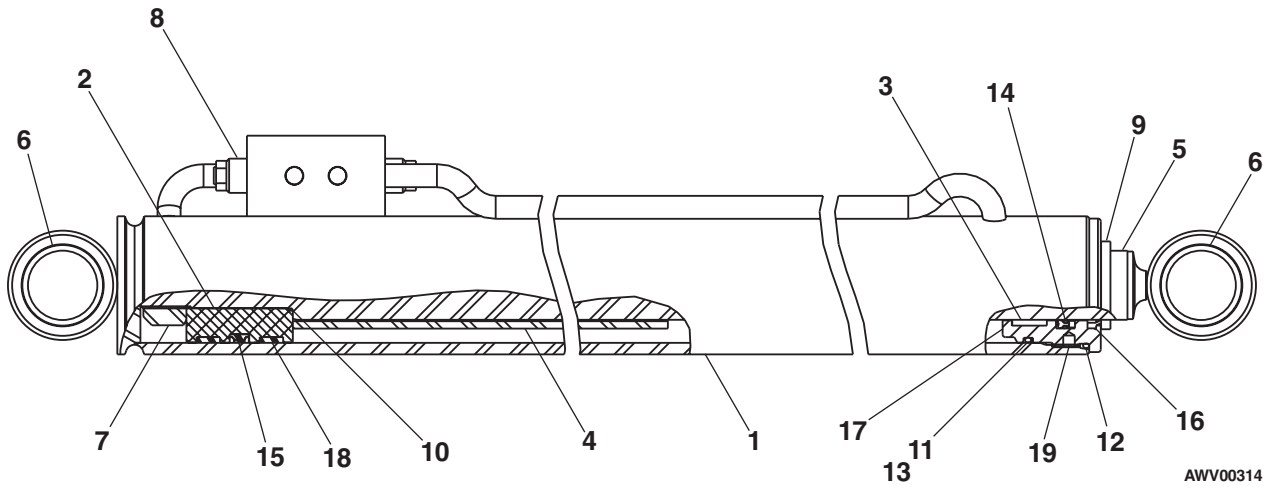
Cylinder, jib - Prince

item	part no	qty	description
	0160813	1	Cylinder, jib - Prince
	0161757	1	Seal repair kit - (kit includes items 18 through 26)
1		1	Butt and tube - (not sold separately)
2	8160339	1	Piston rod
3	8160341	1	Piston
4	8160342	1	Piston
5	8160343	1	Gland
6	8160344	1	Spacer
7	8160095	1	Locknut
8	8160173	4	Plug, shipping
9	8160171	6	Port plug
10	8160172	2	Counterbalance cavity plug
11	8160174	1	Cotter pin
12	8160187	1	Set screw
13	8160345	2	Orifice
14	8160269	1	Rod and wiper cover
15	8160346	4	Bushing
16	8160347	2	Bushing spacer
17	8160348	2	Check valve
18	Kit item	2	Piston ring - (not sold separately)
19	Kit item	2	Bearing ring - (not sold separately)
20	Kit item	1	Capped T-seal - (not sold separately)
21	Kit item	1	O-ring - (not sold separately)
22	Kit item	1	O-ring - (not sold separately)
23	Kit item	1	Back-up - (not sold separately)
24	Kit item	1	Deep Z-seal - (not sold separately)
25	Kit item	1	Wiper - (not sold separately)
26	Kit item	1	O-ring - (not sold separately)



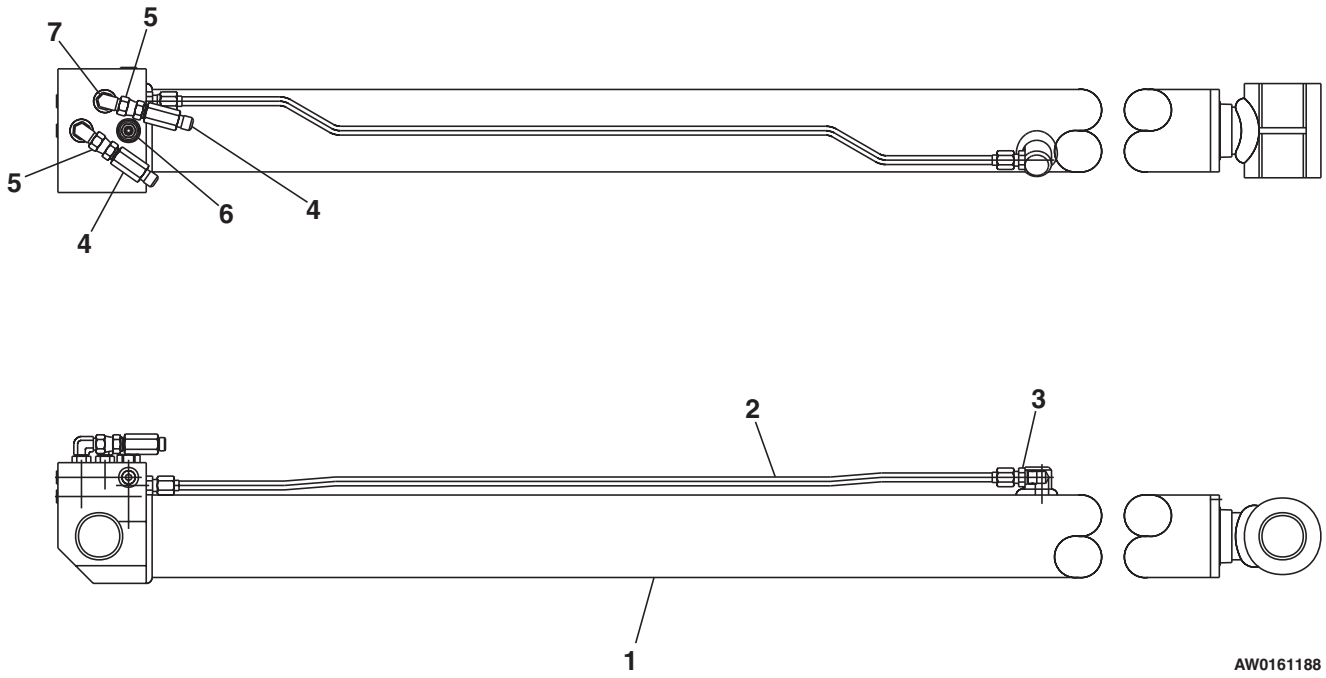
Cylinder, jib - Rosenboom

item	part no	qty	description
	0162783	1	Cylinder, jib - Rosenboom
	6091239	1	Seal repair kit - (kit includes items 10 through 19)
1		1	Tube - (not sold separately)
2	6091233	1	Piston
3	6091234	1	Head gland
4	6091235	1	Rod spacer
5	6091236	1	Rod
6	561126	4	Bearing
7	6091237	1	Locking nut
8	6091284	2	Cartridge counterbalance valve - (factory preset, do not reset)
9	6091238	1	Square ring - (paint screen)
10	Kit item	1	O-ring - (not sold separately)
11	Kit item	1	O-ring - (not sold separately)
12	Kit item	1	O-ring - (not sold separately)
13	Kit item	1	Back-up ring - (not sold separately)
14	Kit item	1	Deep Z-seal - (not sold separately)
15	Kit item	1	Capped T-seal - (not sold separately)
16	Kit item	1	Rod wiper - (not sold separately)
17	Kit item	1	Wearband - (not sold separately)
18	Kit item	1	Wearband - (not sold separately)
19	Kit item	1	Locking insert - (not sold separately)



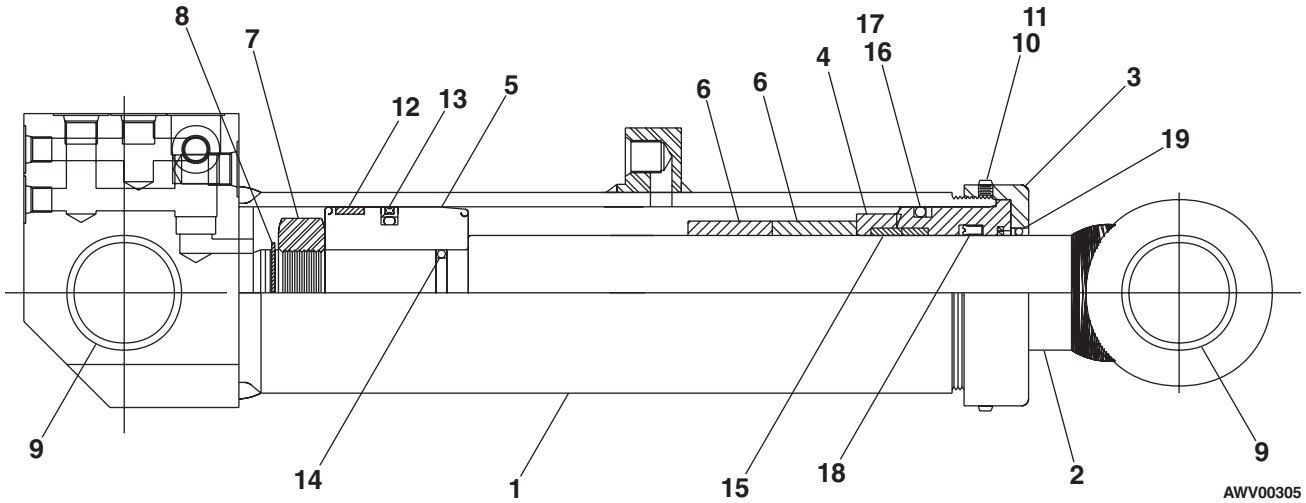
Main boom lift cylinder

item	part no	qty	description
	0161188	1	Main boom lift cylinder
1	0160542	1	Cylinder, main boom lift (see page 2-22 for Green cylinder) (see page 2-23 for Prince cylinder)
2	0160797	1	Transfer tube
3	5065707	2	Straight thread adapter
4	0161835	2	Check valve, .062 inch diameter
5	5025003	2	Swivel adapter
6	6010488	1	Cartridge counterbalance valve - (factory preset, do not reset)
	6091190	1	Seal repair kit
7	5035305	2	Straight thread 90° elbow



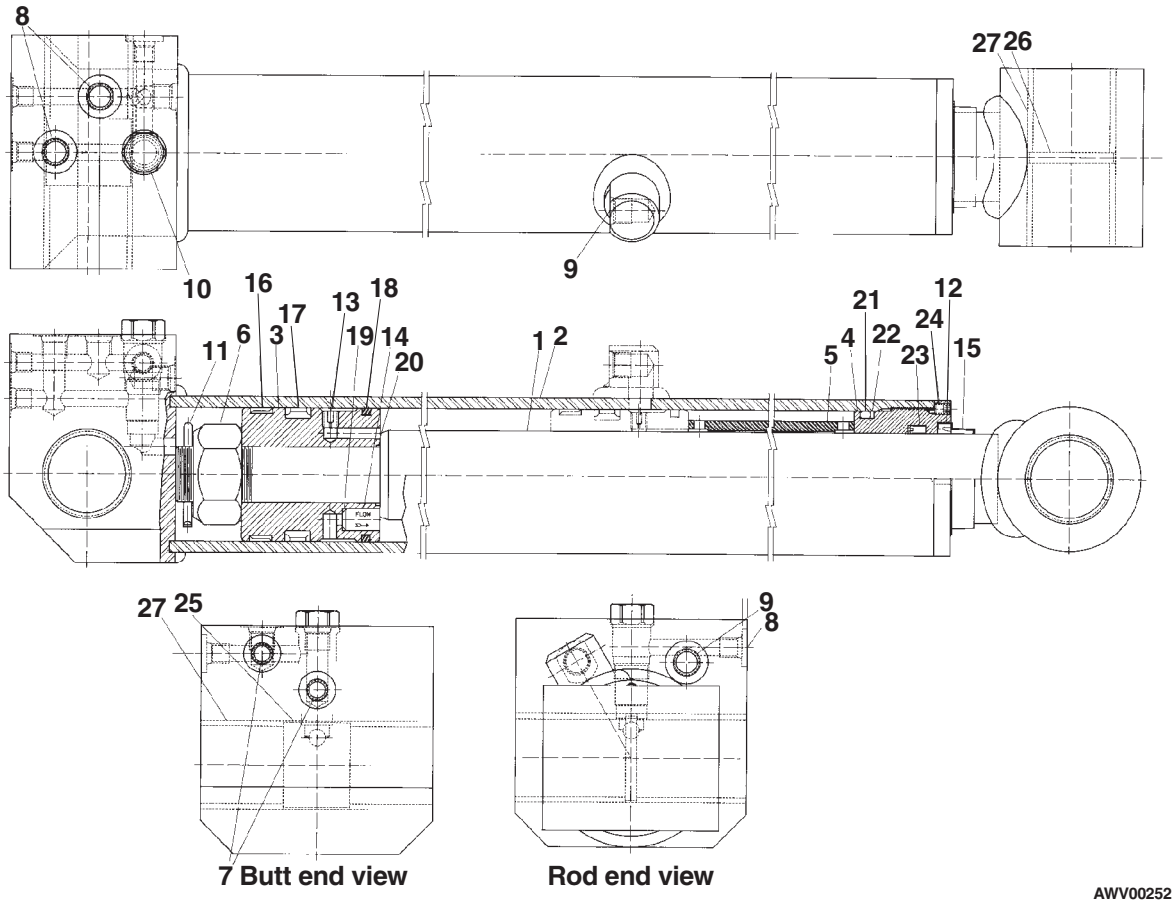
Cylinder, main boom lift - Green

item	part no	qty	description
	0160542	1	Cylinder, main boom lift - Green
	8070847	1	Seal repair kit - (kit includes items 12 through 19)
1		1	Cylinder barrel - (not sold separately)
2	8070842	1	Rod
3	8070845	1	Cap
4	8070844	1	Gland
5	8070843	1	Piston
6	8070846	2	Stop tube
7	8070840	1	Jam lock nut
8	8070839	1	Retaining ring
9	8070836	4	Bearing
10	6091058	2	Nylon ball
11	5560339	2	Set screw
12	Kit item	1	Wear ring - (not sold separately)
13	Kit item	1	Piston seal - (not sold separately)
14	Kit item	1	O-ring - (not sold separately)
15	Kit item	2	Wear ring - (not sold separately)
16	Kit item	1	O-ring - (not sold separately)
17	Kit item	1	Back-up - (not sold separately)
18	Kit item	1	Rod wiper - (not sold separately)
19	Kit item	1	Rod seal - (not sold separately)



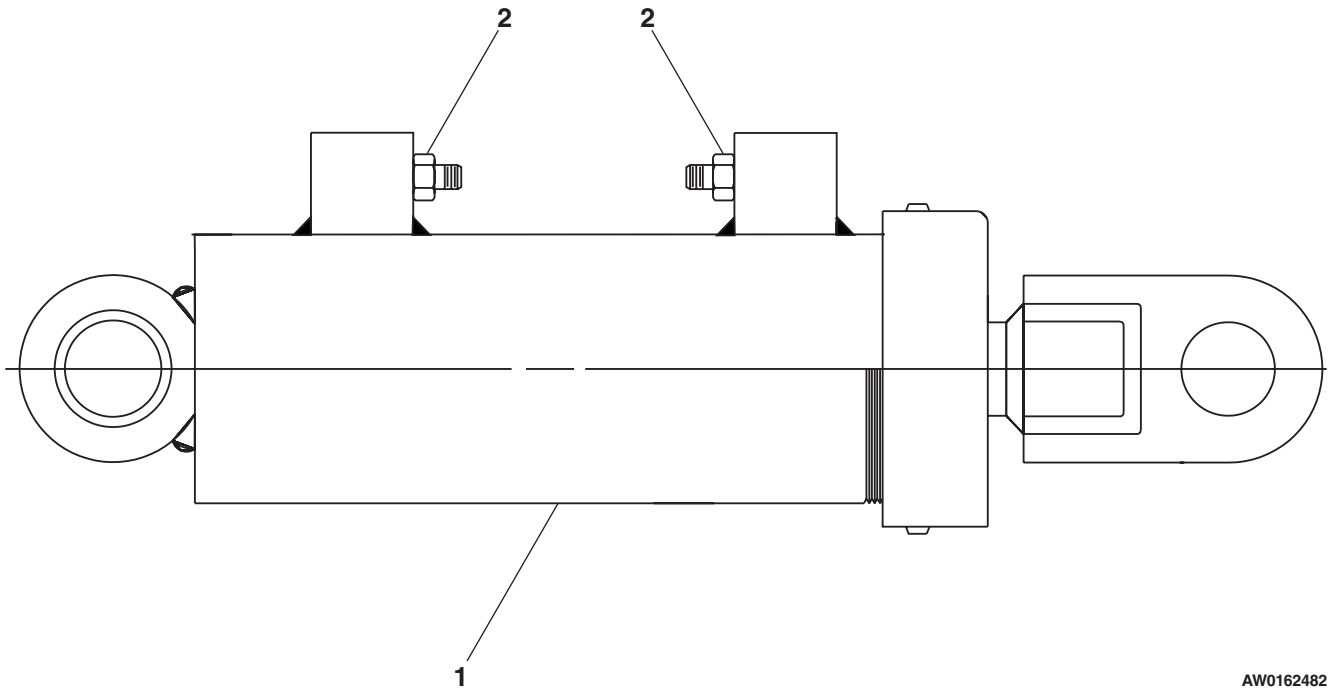
Cylinder, main boom lift - Prince

item	part no	qty	description
	0160542	1	Cylinder, main boom lift - Prince
	0161755	1	Seal repair kit - (kit includes items 16 through 24)
1	6091084	1	Piston rod
2		1	Butt and tube - (not sold separately)
3	6091086	1	Piston
4	6091087	1	Gland
5	8160170	1	Spacer
6	6091082	1	Locknut
7	8160171	2	Plug
8	8160173	1	Plug
9	8160131	4	Plug
10	8160172	1	Counterbalance cavity plug
11	8160211	1	Cotter pin
12	6091083	1	Set screw
13	8160240	1	Orifice plug
14	8160241	1	Check valve
15	8160242	1	Rod and wiper cover
16	Kit item	1	Bearing ring - (not sold separately)
17	Kit item	1	Capped T-seal - (not sold separately)
18	Kit item	1	Piston ring - (not sold separately)
19	Kit item	1	O-ring - (not sold separately)
20	Kit item	1	O-ring - (not sold separately)
21	Kit item	1	O-ring - (not sold separately)
22	Kit item	1	BU-washer - (not sold separately)
23	Kit item	1	U-cup - (not sold separately)
24	Kit item	1	Wiper - (not sold separately)
25	8160251	1	Spacer
26	8160252	1	Spacer
27	8160253	4	Bushing



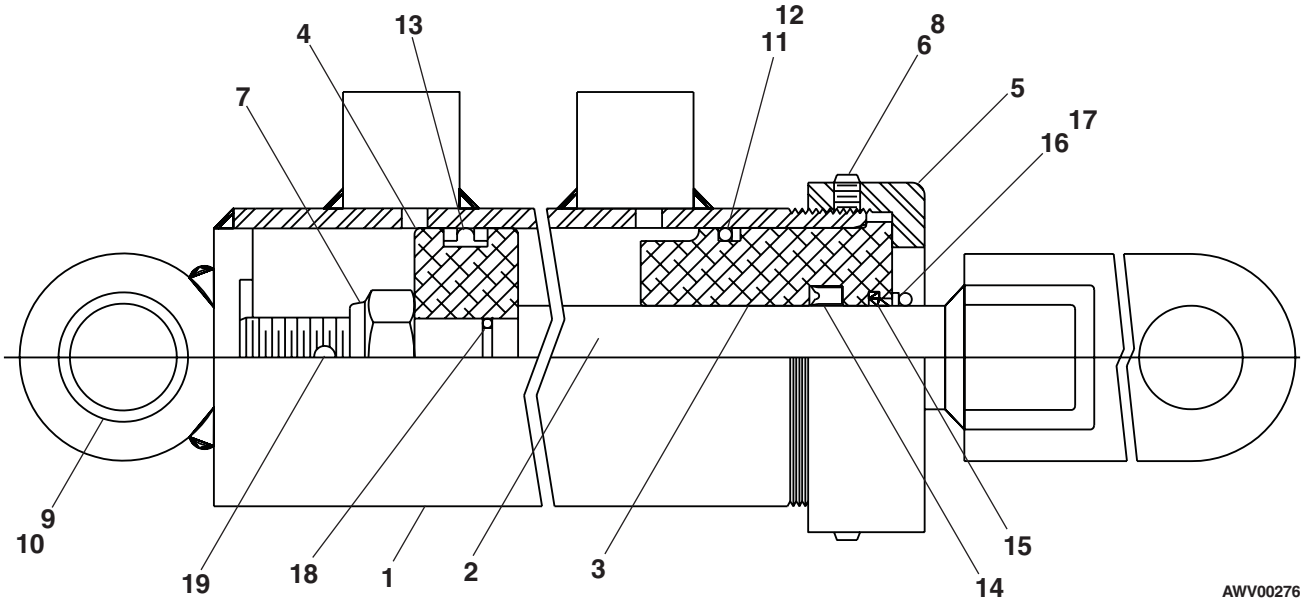
Master level cylinder

item	part no	qty	description
	0162482	1	Master level cylinder
1	0150045	1	Cylinder, master level (see page 2-25 for Green cylinder) (see page 2-26 for Prince cylinder)
2	5065703	2	Straight thread adapter



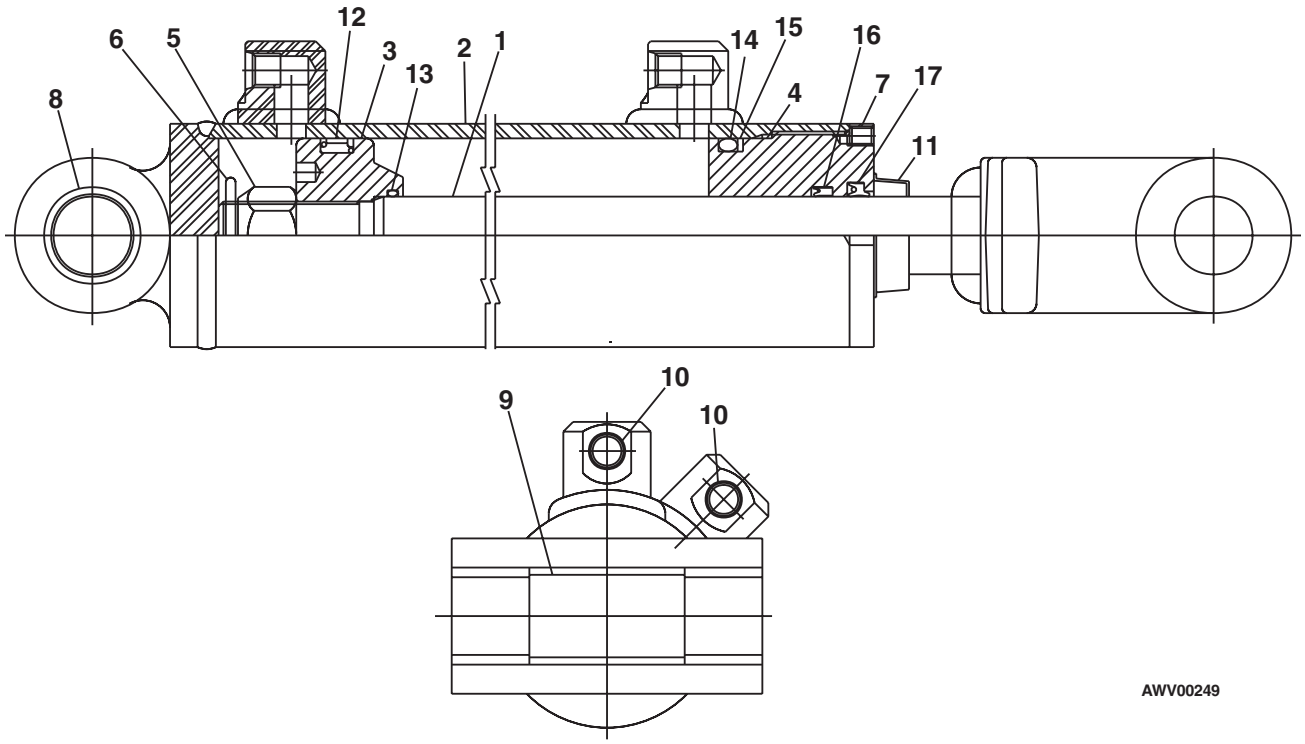
Cylinder, master level - Green

item	part no	qty	description
	0150045	1	Cylinder, master level - Green
	0150556	1	Seal repair kit - (kit includes items 11 through 19)
1		1	Cylinder barrel - (not sold separately)
2	6091132	1	Rod
3	6091061	1	Gland
4	6091131	1	Piston
5	8070462	1	Cap
6	5560339	2	Set screw
7	6091093	1	Full lock nut
8	6091058	2	Nylon ball
9	8070832	2	Bearing
10	8070831	1	Bearing spacer
11	Kit item	1	O-ring - (not sold separately)
12	Kit item	1	Back-up - (not sold separately)
13	Kit item	1	Piston seal - (not sold separately)
14	Kit item	1	Rod seal - (not sold separately)
15	Kit item	1	Dust seal - (not sold separately)
16	Kit item	1	Oil seal - (not sold separately)
17	Kit item	1	U-cup seal - (not sold separately)
18	Kit item	1	O-ring - (not sold separately)
19	Kit item	1	Cotter pin - (not sold separately)



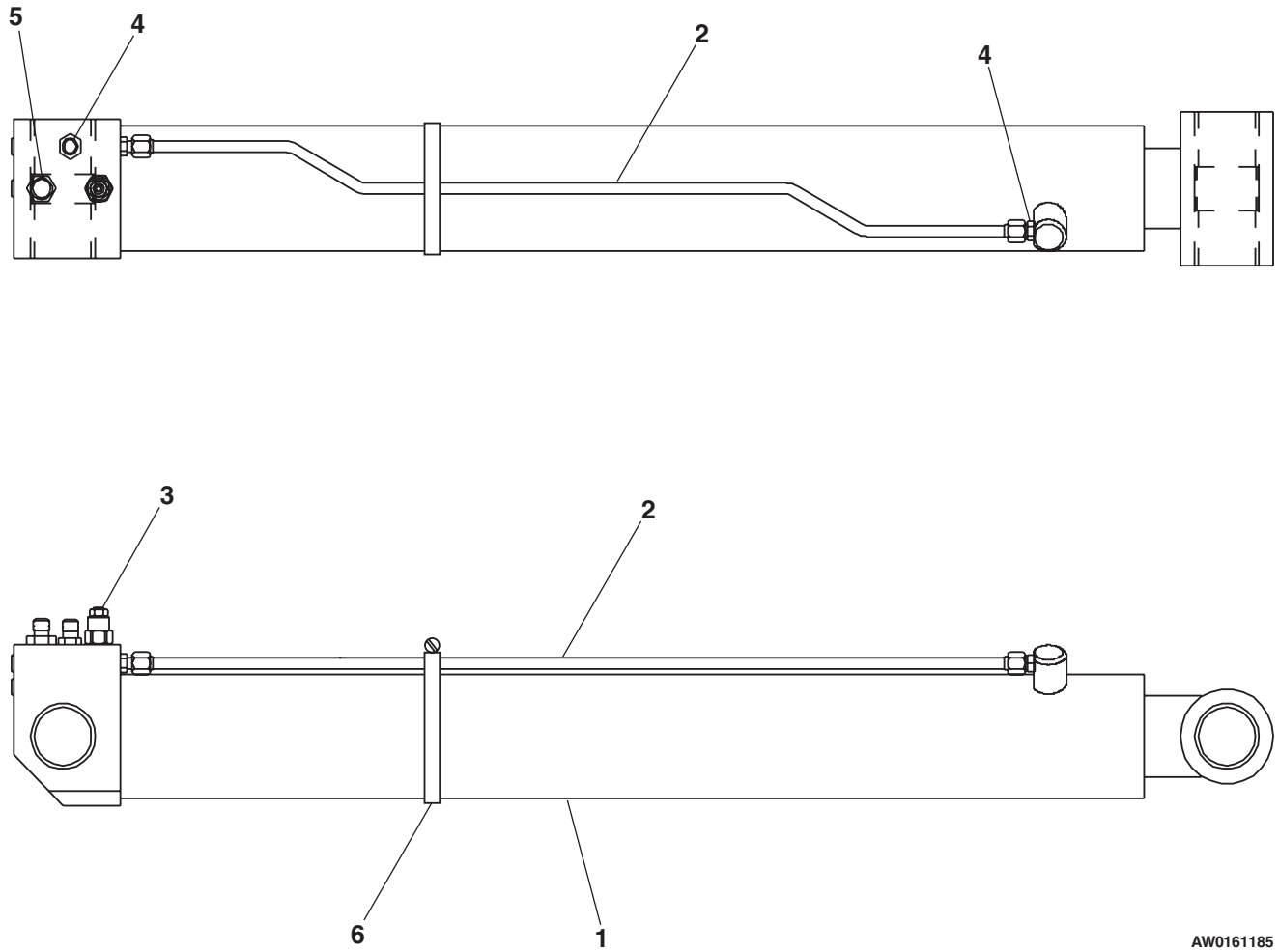
Cylinder, master level - Prince

item	part no	qty	description
	0150045	1	Cylinder, master level - Prince
	8160051	1	Seal repair kit - (kit includes items 12 through 17)
1	8160183	1	Piston rod
2		1	Butt and tube - (not sold separately)
3	8160185	1	Piston
4	8160186	1	Gland
5	6091104	1	Locknut
6	8160174	1	Cotter pin
7	8160187	1	Set screw
8	8160188	2	Bushing
9	8160189	1	Spacer
10	8160171	2	Plug, shipping
11	8160175	1	Wiper cover
12	Kit item	1	Capped T-seal - (not sold separately)
13	Kit item	1	O-ring - (not sold separately)
14	Kit item	1	O-ring - (not sold separately)
15	Kit item	1	BU-washer - (not sold separately)
16	Kit item	1	U-cup - (not sold separately)
17	Kit item	1	Wiper - (not sold separately)



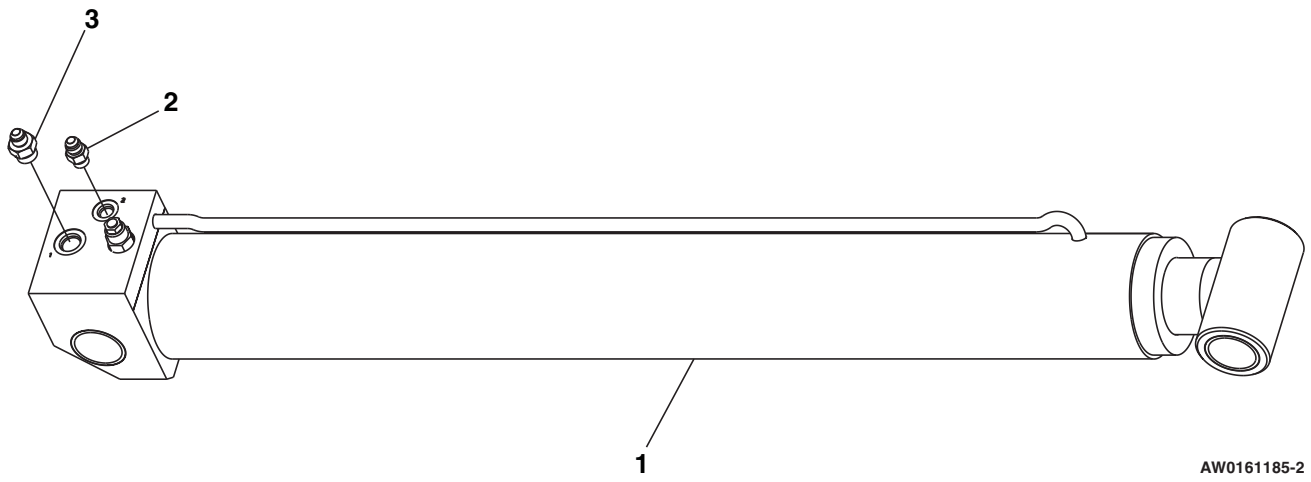
Riser lift cylinder - Prince

item	part no	qty	description
	0161185	1	Riser lift cylinder - Prince
1	0160523	1	Cylinder, riser lift - Prince - (see page 2-29 for parts breakdown)
2	0160796	1	Transfer tube
3	6010794	1	Cartridge holding valve - (factory preset, do not reset)
	0150563	1	Seal repair kit
4	5065707	1	Straight thread adapter
5	5065708	3	Straight thread adapter
6	5550105	1	Clamp



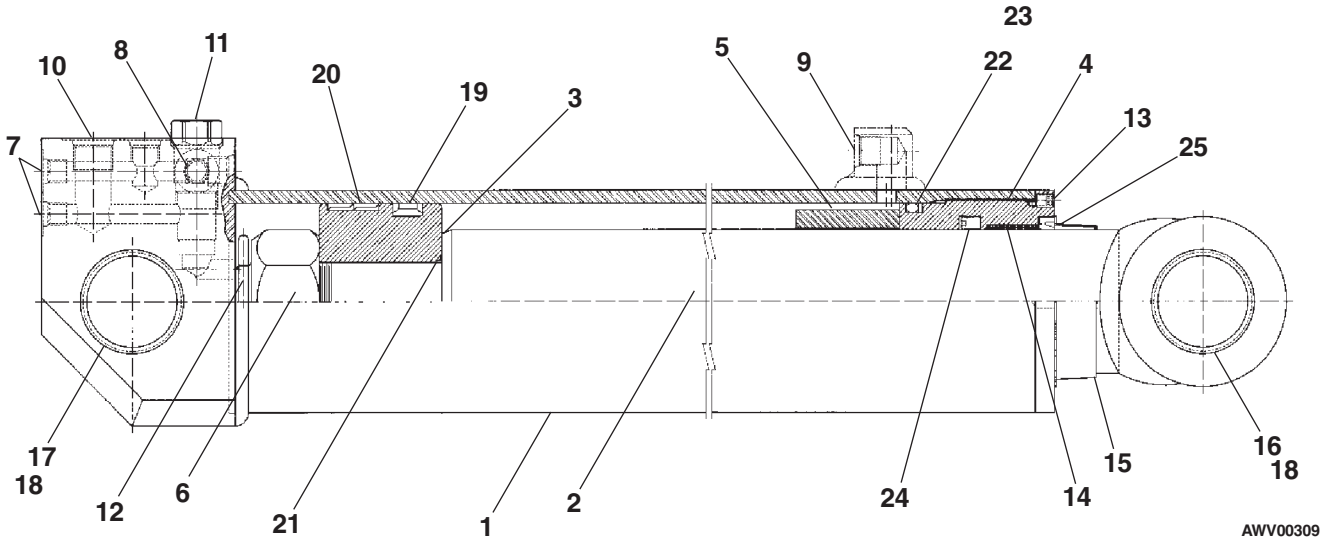
Riser lift cylinder - Rosenboom

item	part no	qty	description
	0161185	1	Riser lift cylinder - Rosenboom
1	0162965-99	1	Cylinder, riser lift - Rosenboom - (see page 2-30 for parts breakdown)
2	5065707	1	Straight thread adapter
3	5065708	1	Straight thread adapter



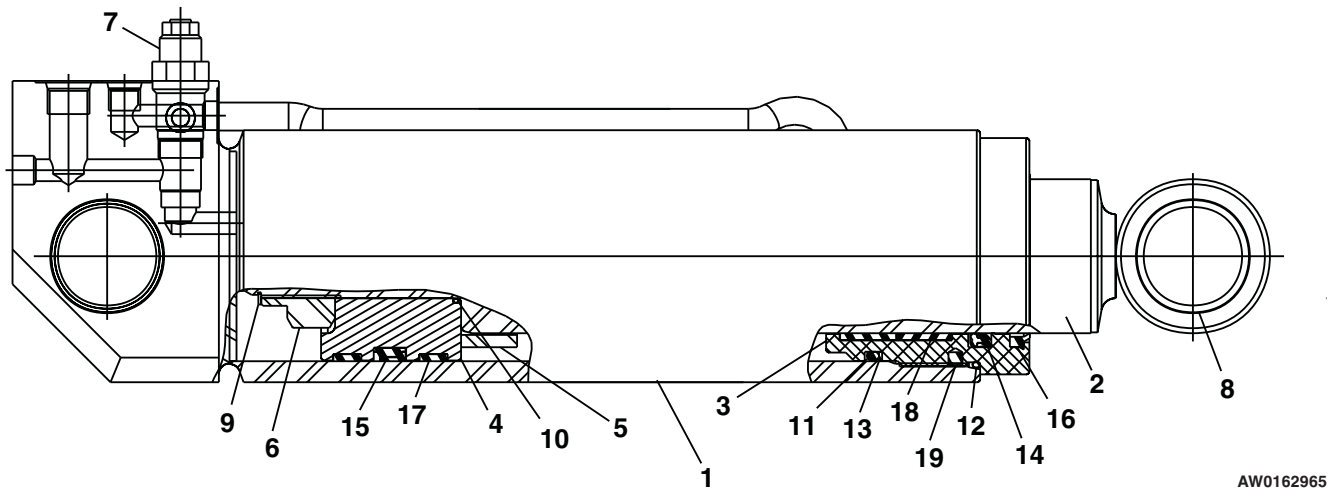
Cylinder, riser lift - Prince

item	part no	qty	description
	0160523	1	Cylinder, riser lift - Prince
	0161758	1	Seal repair kit - (kit includes items 19 through 25)
1		1	Butt and tube - (not sold separately)
2	6091088	1	Rod
3	6091090	1	Piston
4	6091091	1	Gland
5	6091092	1	Spacer
6	8160013	1	Locknut
7	8160171	2	Plug
8	8160173	1	Plug
9	8160131	3	Plug
10	8160132	1	Plug
11	8160172	1	Counterbalance cavity plug
12	8160212	1	Cotter pin
13	6091083	1	Set screw
14	8160325	1	Bushing
15	8160326	1	Rod wiper and cover
16	8160251	1	Bushing spacer
17	8160333	1	Bushing spacer
18	8160253	4	Bushing
19	Kit item	1	Capped T seal - (not sold separately)
20	Kit item	2	Bearing ring - (not sold separately)
21	Kit item	1	O-ring - (not sold separately)
22	Kit item	1	O-ring - (not sold separately)
23	Kit item	1	BU-washer - (not sold separately)
24	Kit item	1	U-cup - (not sold separately)
25	Kit item	1	Wiper - (not sold separately)



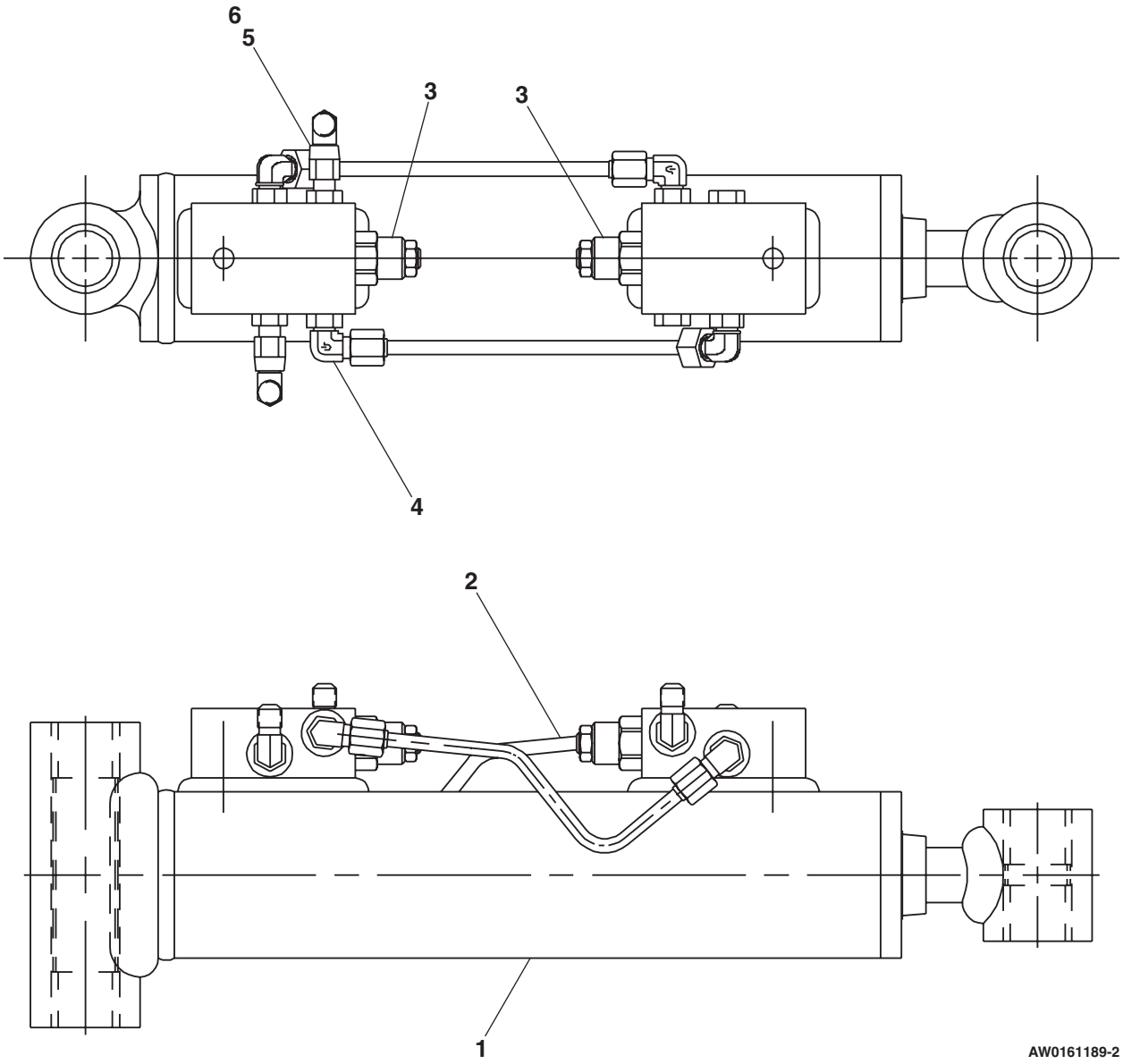
Cylinder, riser lift - Rosenboom

item	part no	qty	description
	0162965-99	1	Cylinder, riser lift - Rosenboom
	6091273	1	Seal repair kit - (kit includes items 9 through 19)
1		1	Tube - (not sold separately)
2	6091271	1	Rod
3	6091269	1	Head gland
4	6091268	1	Piston
5	6091270	1	Rod spacer
6	6091272	1	Locknut
7	6010794	1	Cartridge holding valve - (factory preset, do not reset)
	0150563	1	Seal repair kit
8	561116	4	Bearing
9	Kit item	1	Snap ring - (not sold separately)
10	Kit item	1	O-ring - (not sold separately)
11	Kit item	1	O-ring - (not sold separately)
12	Kit item	1	O-ring - (not sold separately)
13	Kit item	1	Back-up - (not sold separately)
14	Kit item	1	Deep Z-seal - (not sold separately)
15	Kit item	1	Capped T-seal - (not sold separately)
16	Kit item	1	Rod wiper - (not sold separately)
17	Kit item	2	Wearband - (not sold separately)
18	Kit item	2	Wearband - (not sold separately)
19	Kit item	1	Locking insert - (not sold separately)



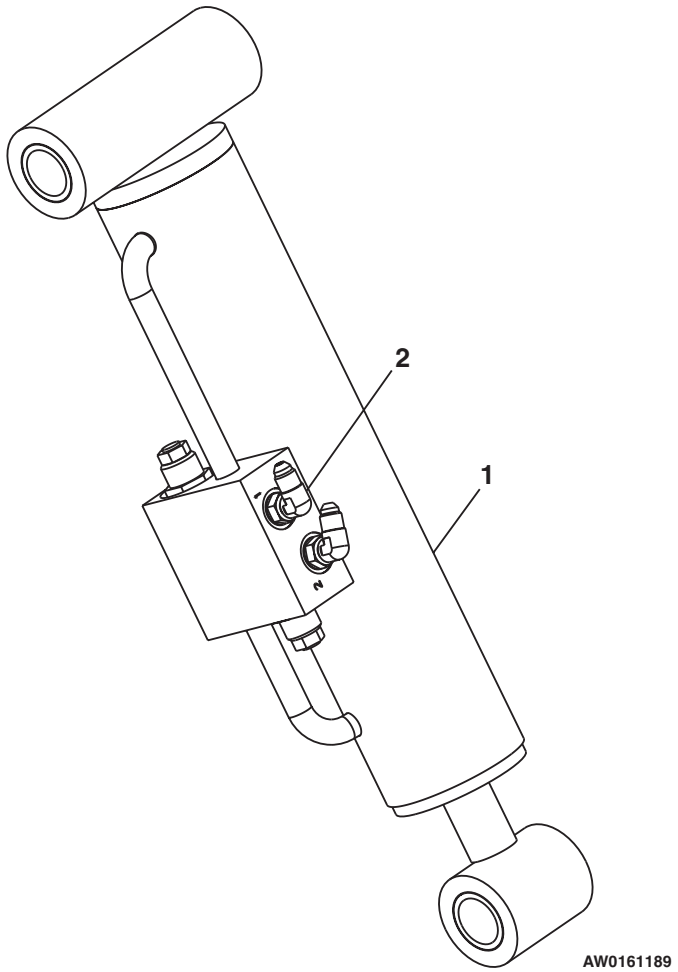
Slave level cylinder before 11-30-2000

item	part no	qty	description
	0161189	1	Slave level cylinder
1	0161045	1	Cylinder, slave level (see page 2-33 for GBI cylinder) (see page 2-34 for Prince cylinder
2	0161191	2	Transfer tube
3	6010794	2	Cartridge holding valve - (factory preset, do not reset)
	0150563	2	Seal repair kit
4	5035303	4	Straight thread 90° elbow
5	5065703	2	Straight thread adapter
6	5037003	2	Swivel nut 90° elbow



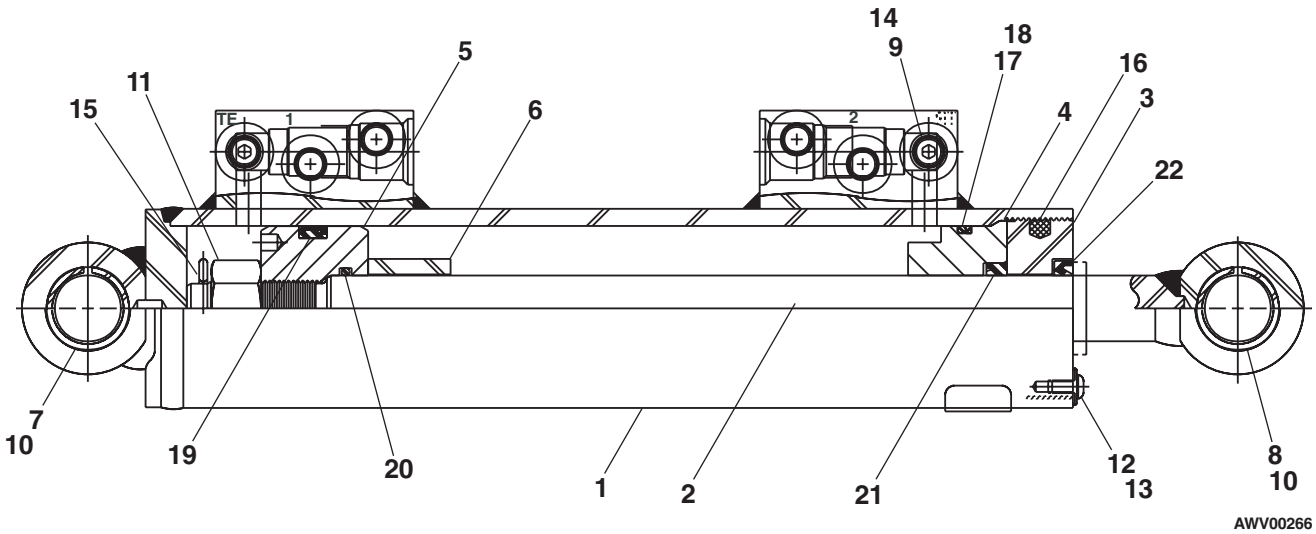
Slave level cylinder after 11-30-2000

item	part no	qty	description
	0161189	1	Slave level Cylinder
1	0163144	1	Cylinder, slave level - (see page 2-35 for parts breakdown)
2	5035305	2	Straight thread 90° elbow



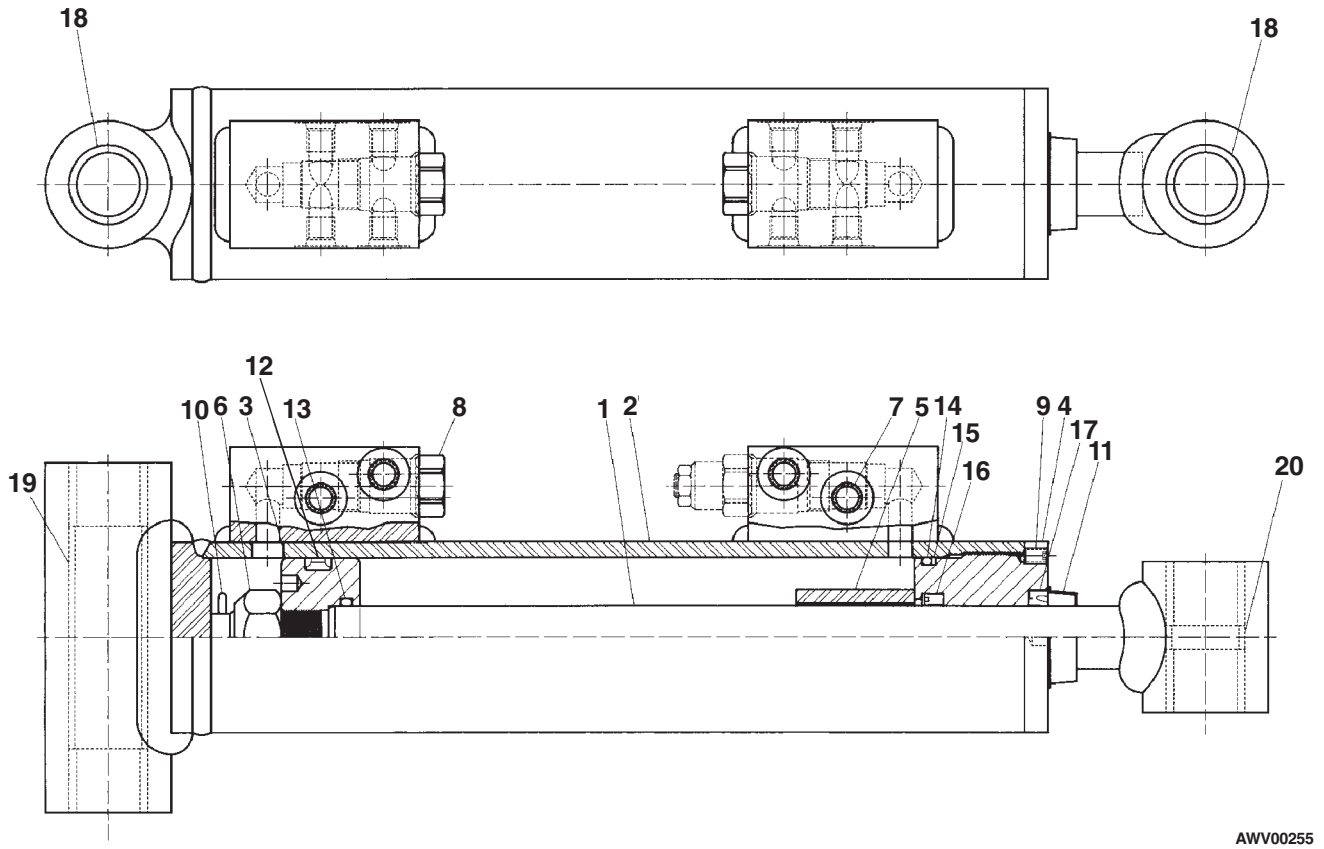
Cylinder, slave level - GBI

item	part no	qty	description
	0161045	1	Cylinder, slave level - GBI
	8070274	1	Seal repair kit - (kit includes items 14 through 22)
1		1	Tube - (not sold separately)
2	8070669	1	Rod
3	8070668	1	Retainer
4	8070587	1	Bearing
5	8070667	1	Piston
6	8070666	1	Spacer
7	8070665	1	Spacer
8	8070664	1	Spacer
9	8070580	2	Port plug
10	8070663	4	Bushing
11	8070649	1	Nut
12	8070300	1	Lock washer
13	8070301	1	Capscrew
14	Kit item	2	O-ring - (not sold separately)
15	Kit item	1	Cotter pin - (not sold separately)
16	Kit item	1	Nylon plug - (not sold separately)
17	Kit item	1	Back-up - (not sold separately)
18	Kit item	1	O-ring - (not sold separately)
19	Kit item	1	Quad seal - (not sold separately)
20	Kit item	1	O-ring - (not sold separately)
21	Kit item	1	U-ring - (not sold separately)
22	Kit item	1	Wiper - (not sold separately)



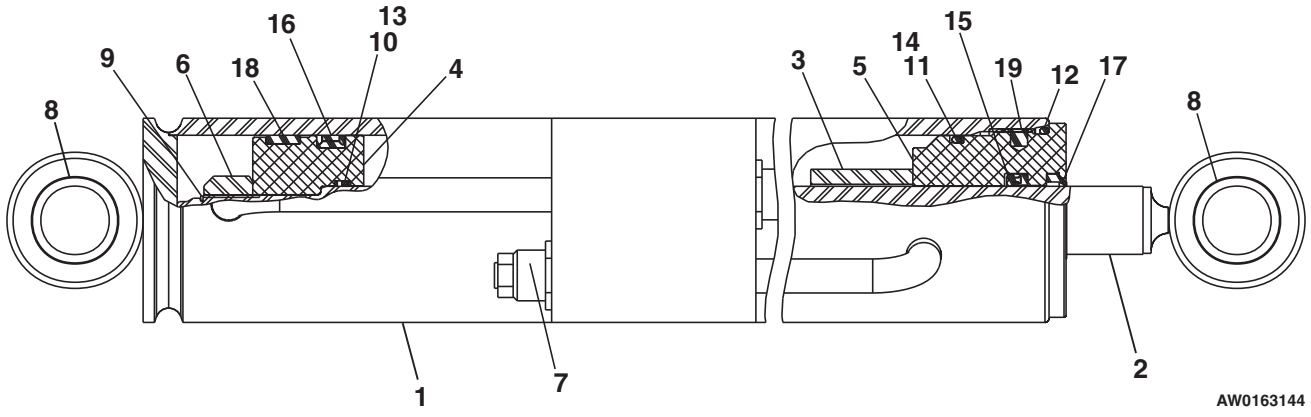
Cylinder, slave level - Prince

item	part no	qty	description
	0161045	1	Cylinder, slave level - Prince
	0161759	1	Seal repair kit - (kit includes items 12 through 17)
1	6091100	1	Piston rod
2		1	Butt and tube - (not sold separately)
3	6091102	1	Piston
4	6091103	1	Gland
5	8160235	1	Spacer
6	6091104	1	Locknut
7	8160171	8	Port plug
8	8160172	2	Counterbalance plug
9	6091083	1	Set screw
10	8160174	1	Cotter pin
11	8160175	1	Wiper cover
12	Kit item	1	Capped T-seal - (not sold separately)
13	Kit item	1	O-ring - (not sold separately)
14	Kit item	1	O-ring - (not sold separately)
15	Kit item	1	BU-washer - (not sold separately)
16	Kit item	1	U-cup - (not sold separately)
17	Kit item	1	Wiper - (not sold separately)
18	8160188	4	Bushing
19	8160237	1	Spacer
20	8160238	1	Spacer



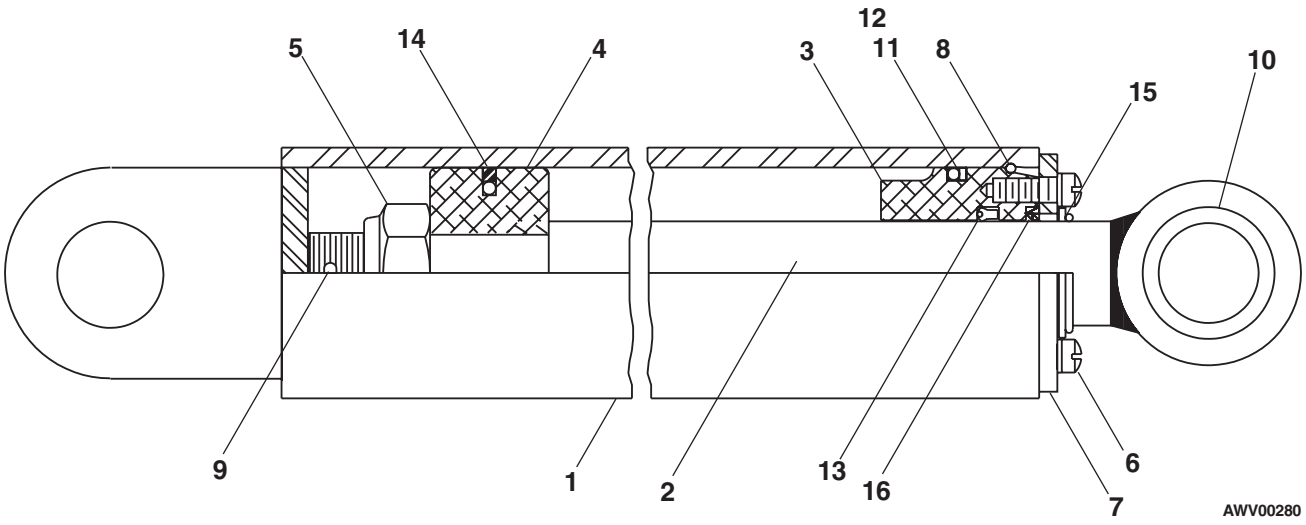
Cylinder, slave level - Rosenboom

item	part no	qty	description
	0163144	1	Cylinder, slave level - Rosenboom
	6091333	1	Seal repair kit - (kit includes items 9 through 19)
1		1	Tube - (not sold separately)
2	6091369	1	Rod
3	6091370	1	Rod spacer
4	6091331	1	Piston
5	6091336	1	Head gland
6	6091282	1	Locknut
7	6010794	2	Cartridge holding valve - (factory preset, do not reset)
	0150563	1	Seal repair kit
8	2500034	4	Bearing
9	Kit item	1	Snap ring - (not sold separately)
10	Kit item	1	O-ring - (not sold separately)
11	Kit item	1	O-ring - (not sold separately)
12	Kit item	1	O-ring - (not sold separately)
13	Kit item	2	Back-up - (not sold separately)
14	Kit item	1	Back-up - (not sold separately)
15	Kit item	1	Deep Z-seal - (not sold separately)
16	Kit item	1	Capped T-seal - (not sold separately)
17	Kit item	1	Rod wiper - (not sold separately)
18	Kit item	1	Wearband - (not sold separately)
19	Kit item	1	Locking insert - (not sold separately)



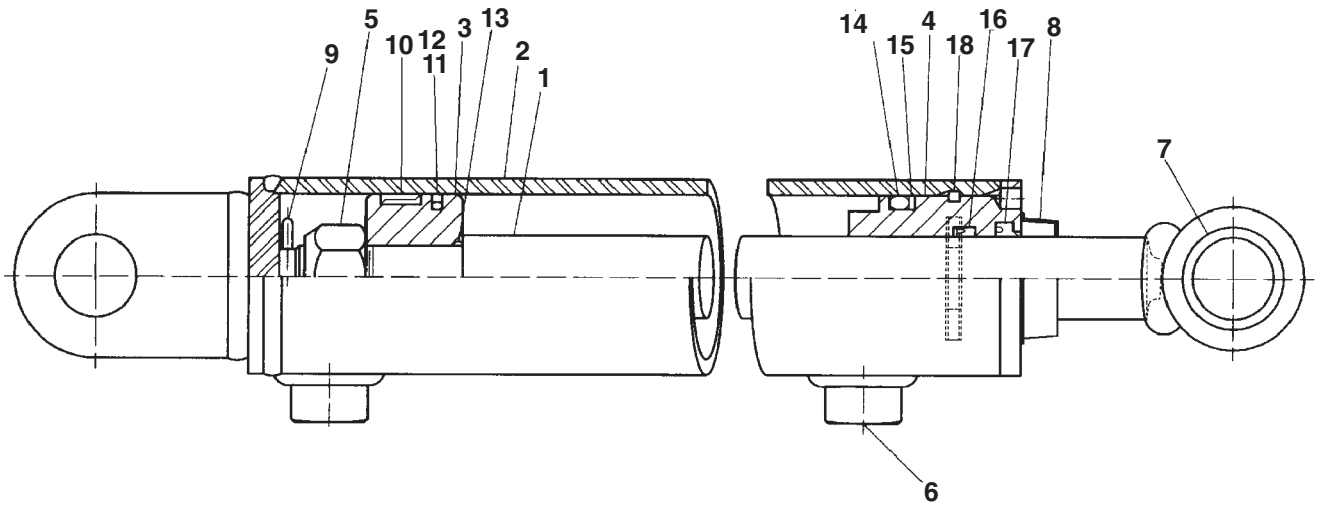
Cylinder, steering - Green

item	part no	qty	description
	0150216	1	Cylinder, steering - Green
	0150557	1	Seal repair kit - (kit includes items 11 through 16)
1		1	Cylinder barrel - (not sold separately)
2	8070245	1	Rod
3	8070204	1	Sleeve
4	6091094	1	Piston
5	8070457	2	Machine screw
6	8070466	1	Full lock nut
7	8070244	1	Lockwire
8	6091098	1	Washer
9	070354	1	Retaining ring
10	2500061	1	Bearing
11	Kit item	1	O-ring - (not sold separately)
12	Kit item	1	Back-up - (not sold separately)
13	Kit item	1	Rod seal - (not sold separately)
14	Kit item	1	Piston seal - (not sold separately)
15	Kit item	1	Oil seal - (not sold separately)
16	Kit item	1	Dust seal - (not sold separately)



Cylinder, steering - Prince

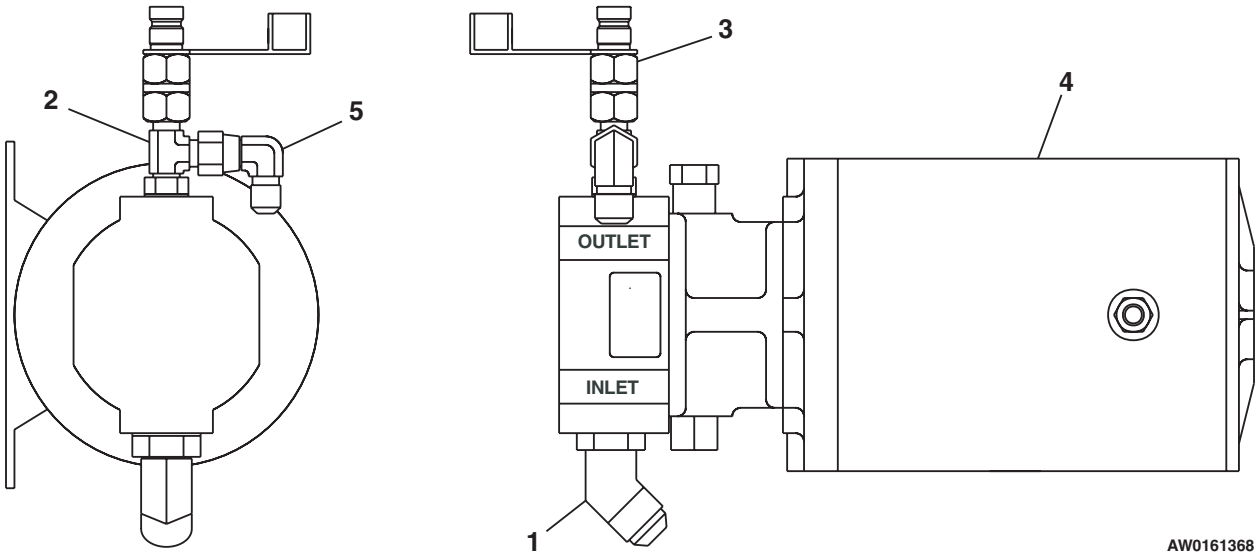
item	part no	qty	description
	0150216	1	Cylinder, steering - Prince
	8160052	1	Seal repair kit - (kit includes items 10 through 18)
1	8160256	1	Piston rod
2		1	Butt and tube - (not sold separately)
3	8160223	1	Piston
4	8160224	1	Gland
5	8160225	1	Locknut
6	8160131	2	Port plug
7	8160226	1	Bushing
8	8160175	1	Wiper cover
9	8160174	1	Cotter pin
10	Kit item	1	Wear ring - (not sold separately)
11	Kit item	1	Teflon seal - (not sold separately)
12	Kit item	1	O-ring - (not sold separately)
13	Kit item	1	O-ring - (not sold separately)
14	Kit item	1	O-ring - (not sold separately)
15	Kit item	1	BU-washer - (not sold separately)
16	Kit item	1	U-cup - (not sold separately)
17	Kit item	1	Wiper - (not sold separately)
18	Kit item	1	Square wire retainer - (not sold separately)



AWV00250

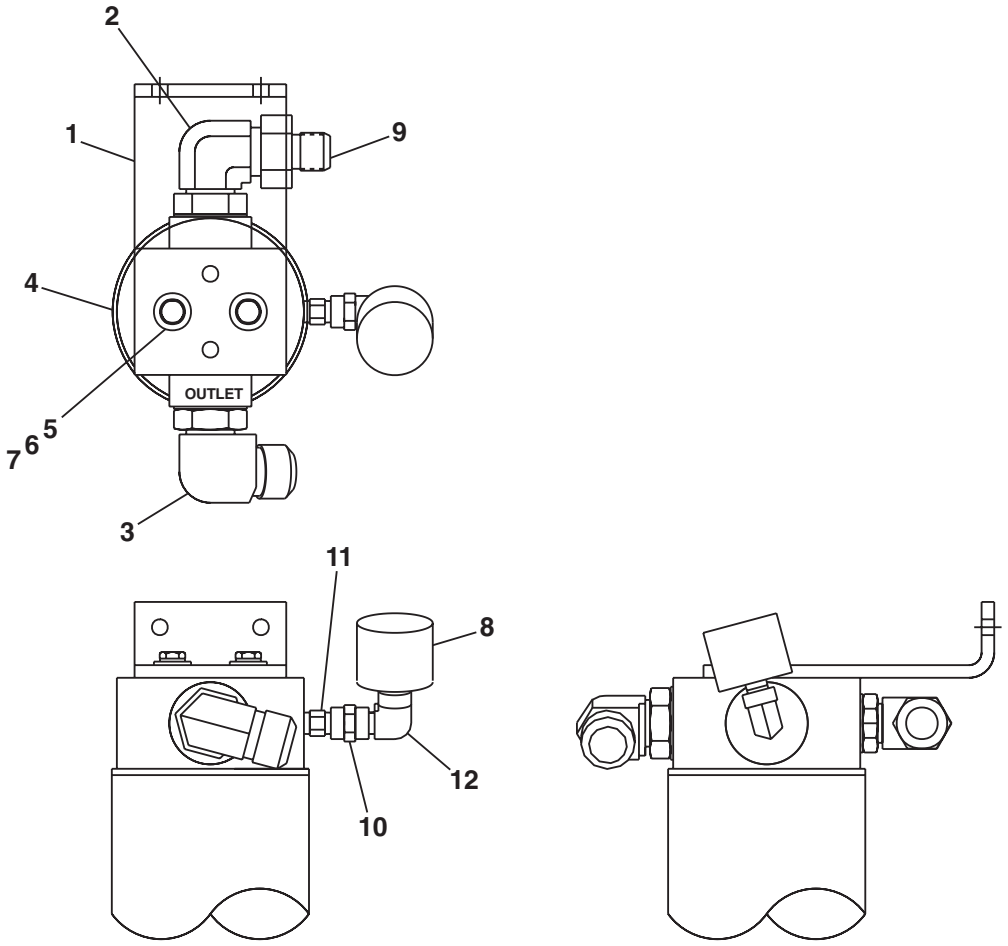
Emergency power pump

item	part no	qty	description
	0161368	1	Emergency power pump
1	5035706	1	Straight thread 45° elbow
2	5036105	1	Straight thread run tee
3	5070010	1	Diagnostic nipple
4	6020058	1	Emergency power motor/pump
5	5037005	1	Swivel nut 90° elbow



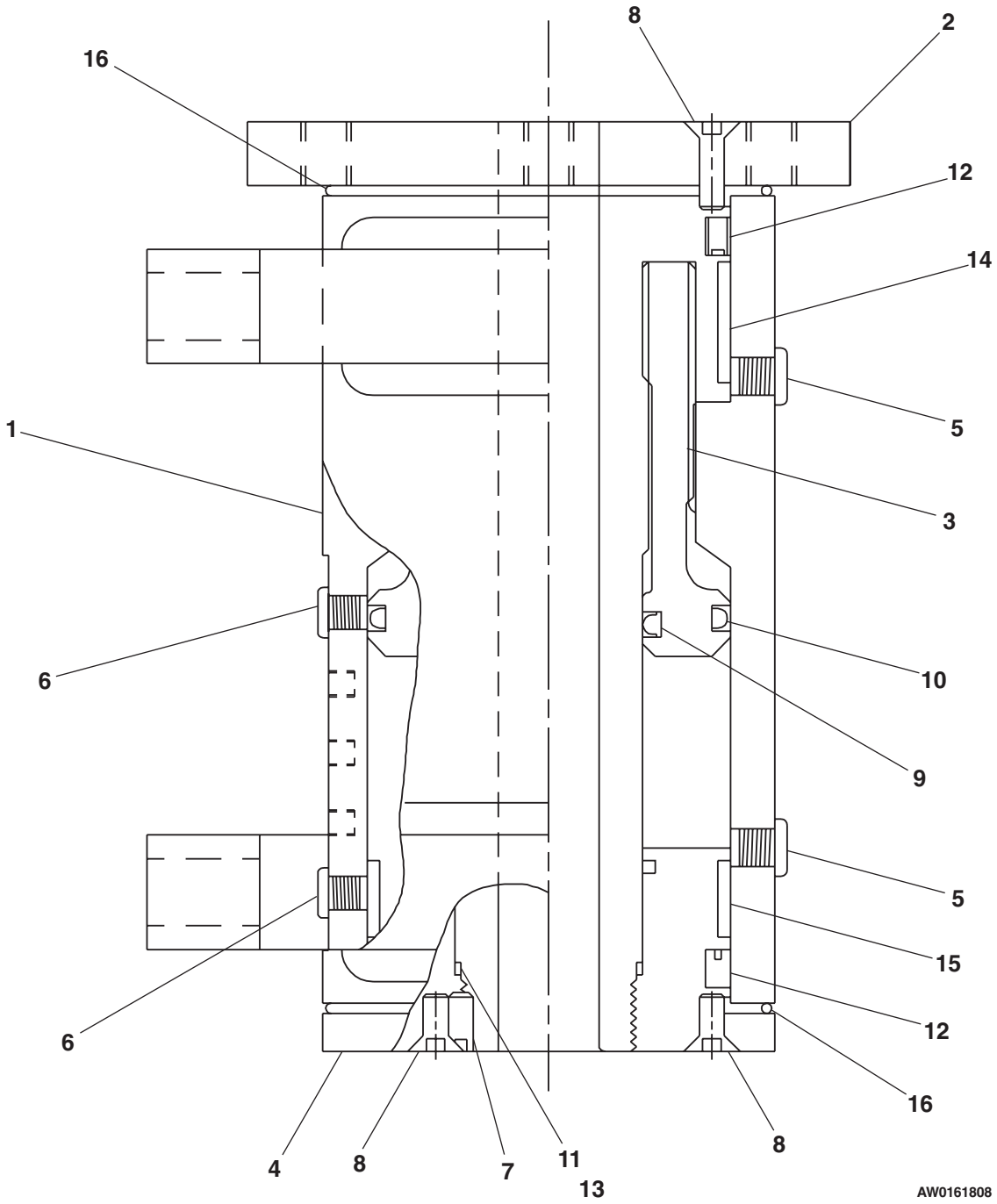
Hydraulic oil filter

item	part no	qty	description
	0161644	1	Hydraulic oil filter, complete
1	0161221	1	Bracket, filter mounting
2	5035317	1	Straight thread 90° elbow
3	5035308	1	Straight thread 90° elbow
4	5080039	1	Hydraulic oil filter
	5080040	1	Replacement filter element
	5080049	1	Replacement filter head
5	970029	2	Capscrew 1/4-20 x 3/4 inch long hex head grade 5
6	986019	2	Washer 1/4 medium flat
7	987099	2	Washer 1/4 medium lock
8	5080011	1	Filter gauge - (included with item 4)
9	5064005	1	Tube end reducer
10	7754001	1	Pipe coupling, 1/8 inch NPT
11	5060501	1	Fitting, male 1/8 NPT
12	5031001	1	Pipe elbow 90° 1/8 NPT



Hydraulic platform rotator

item	part no	qty	description
	0161808	1	Hydraulic platform rotator
1	0162525	1	Housing
2	0162626	1	Shaft
3	0162627	1	Piston sleeve
4	0162628	1	End cap
5	0162633	1	Hardware kit - (kit includes items 6, 7, 8 and 9)
6	Kit item	2	plug - (not sold separately)
7	Kit item	1	Plug - (not sold separately)
8	Kit item	2	Dowel pin - (not sold separately)
9	Kit item	6	Capscrew - (not sold separately)
10	8080111	1	Seal kit - (kit includes items 11, 12, 13,14 and 15)
11	Kit item	1	Seal - (not sold separately)
12	Kit item	1	Seal - (not sold separately)
13	Kit item	1	O-ring - (not sold separately)
14	Kit item	2	U-cup seal - (not sold separately)
15	Kit item	1	Back-up ring - (not sold separately)
16	0162634	1	Bearing kit
17	Kit item	1	Wear ring - (not sold separately)
18	Kit item	1	Wear ring - (not sold separately)
19	Kit item	2	Thrust washer - (not sold separately)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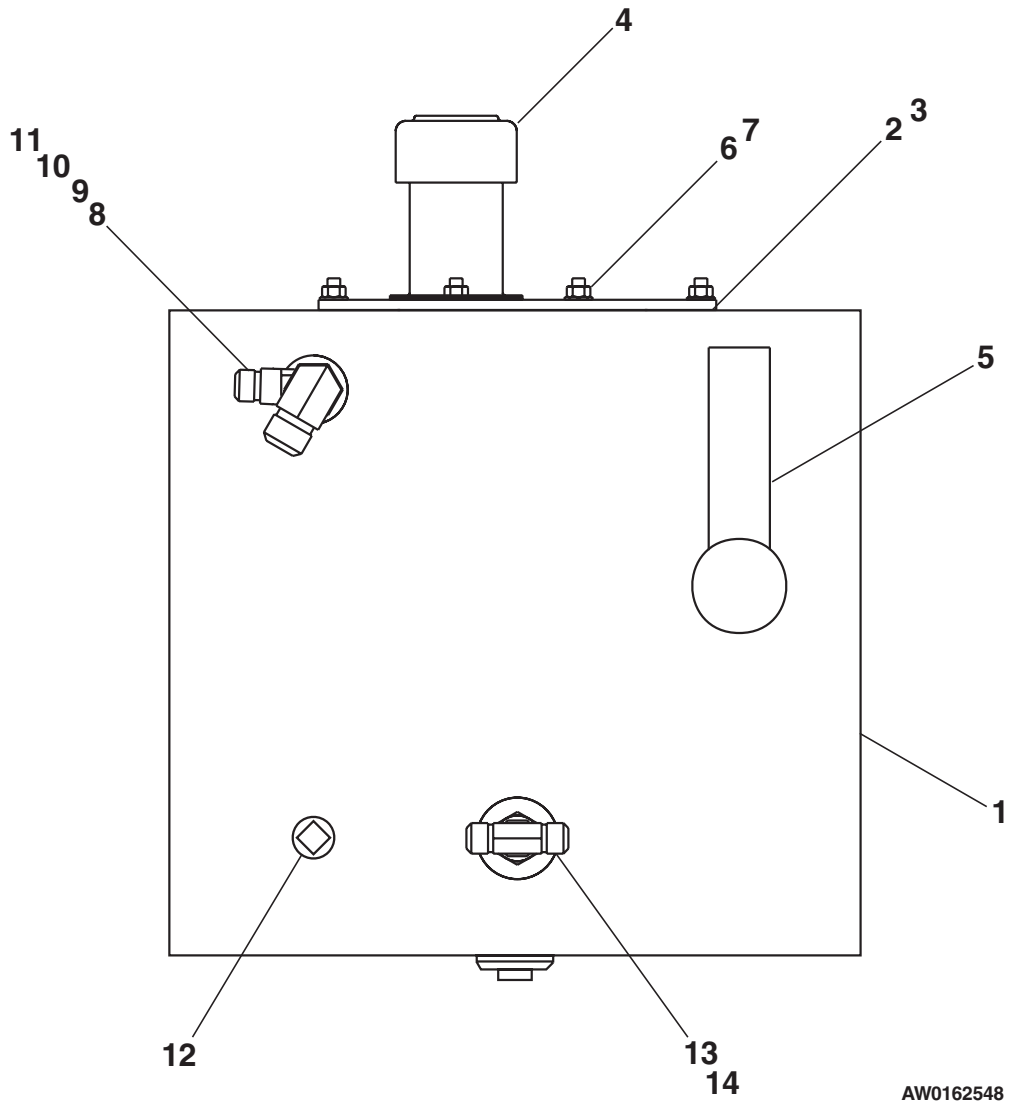
AW0161808

Hydraulic oil reservoir

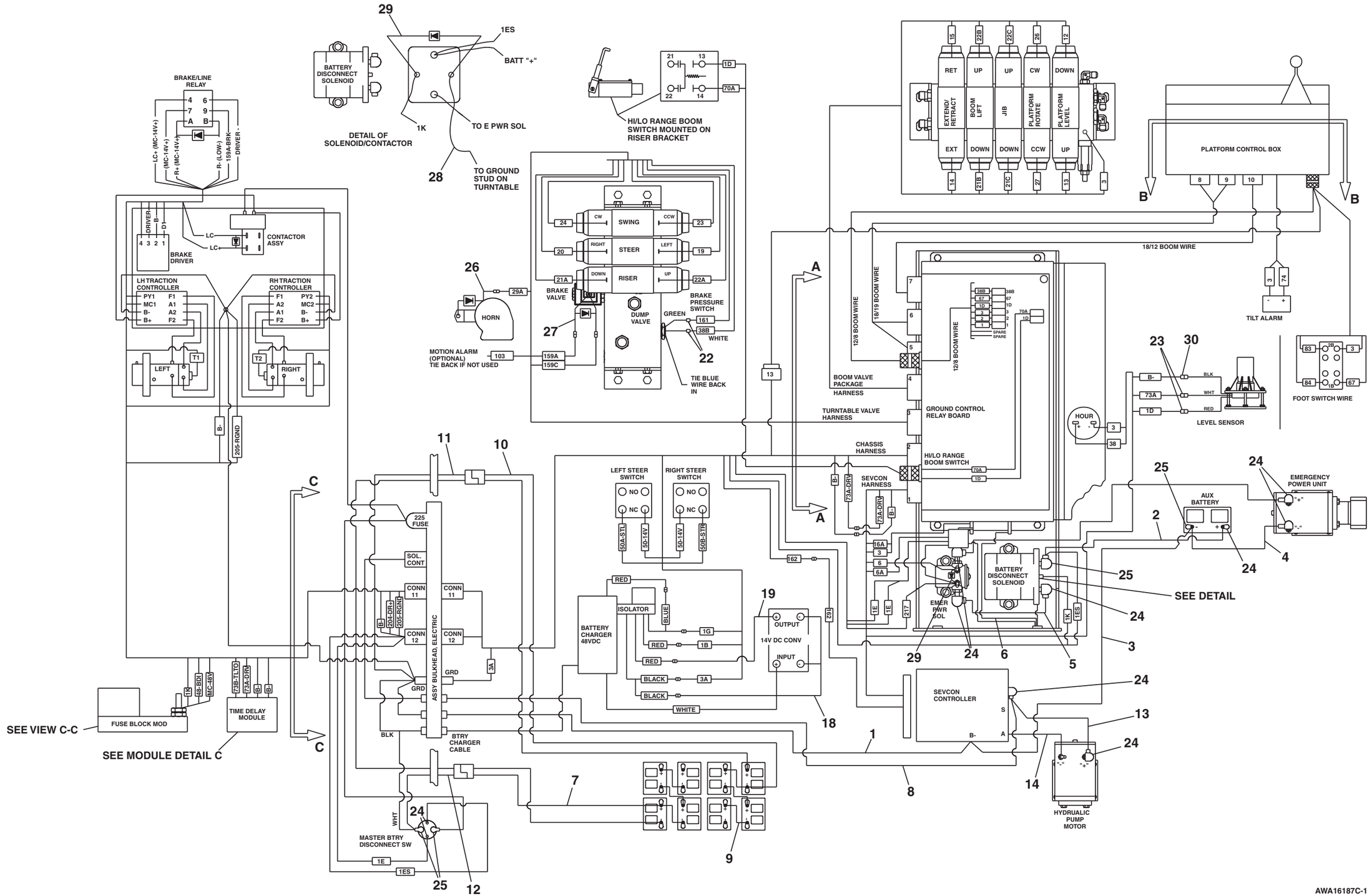
item	part no	qty	description
	0162548	1	Hydraulic oil reservoir, complete
1	0161226	1	Hydraulic oil reservoir
	8010283	1	Replacement suction filter
2	8010284	1	Reservoir cover
3	8010282	1	Cover gasket
4	0020946	1	Filler/breather
	8010288	1	Replacement filler/breather cap
5	5090007	1	Liquid level gauge with thermometer
6	987109	10	Washer 5/16 medium lock
7	984089	10	Nut 5/16-18 hex
8	5033806	1	Male run tee
9	5037008	1	Swivel nut 90° elbow
10	5064008	1	Tube end reducer
11	5063908	1	Fitting nut
12	7714204	1	Pipe plug 1/2 inch NPT square head
13	5033615	1	Male adapter
14	5036806	1	Swivel nut branch tee



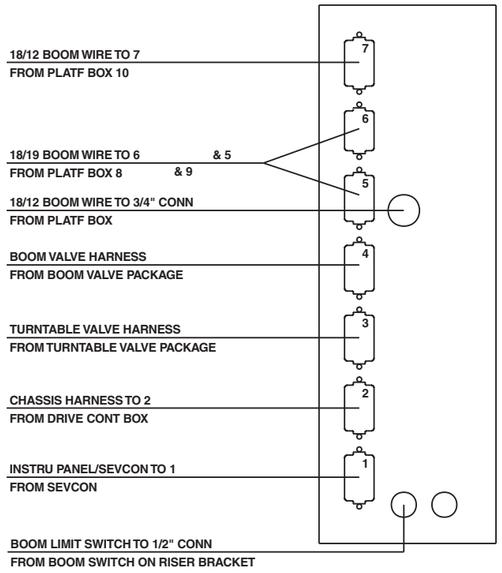
ATB 46e

General wiring diagram

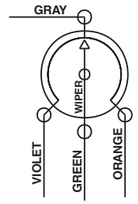
item	part no	qty	description
1	302807	1	Jumper wire
2	302815	2	Jumper wire
3	607154	1	Jumper wire
4	0090318	1	Battery wire
5	0090319	1	Jumper wire
6	0130124	1	Jumper wire
7	0150444	1	Battery wire
8	0161407	1	Jumper wire
9	0161408	6	Jumper wire
10	0161646	1	Battery wire
11	0161647	1	Battery wire
12	0161648	1	Battery wire
13	0161817	1	Jumper wire
14	0161818	1	Jumper wire
15	0163131	1	Jumper wire
16	0163134	1	Jumper wire
17	0163135	1	Jumper wire
18	0163136	1	Jumper wire
19	0163137	1	Jumper wire
20	0163139	1	Jumper wire
21	0163141	1	Jumper wire
22	3040046	2	Terminal .250 tab male slip-on fully insulated 22/18 wire
23	3040082	2	Terminal .250 tab male slip-on fully insulated 16/14 wire
24	3040268	8	Insulator boot
25	3040269	5	Insulator boot
26	0351026	1	Diode jumper wire
27	0351029	3	Diode jumper wire
28	0071959	1	Jumper wire
29	0351039	2	Diode jumper wire
30	3040083	1	Terminal .250 tab female fully insulated 16/14 wire

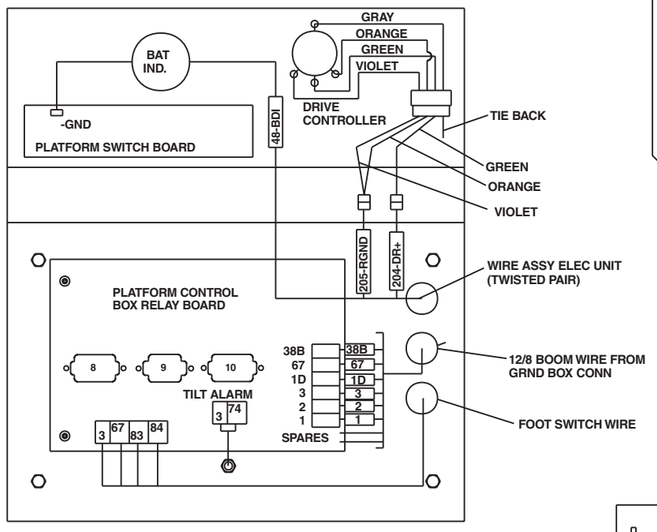


TITLE	General wiring diagram sheet 1 Snorkel model ATB 46e
	Page 3 - 3

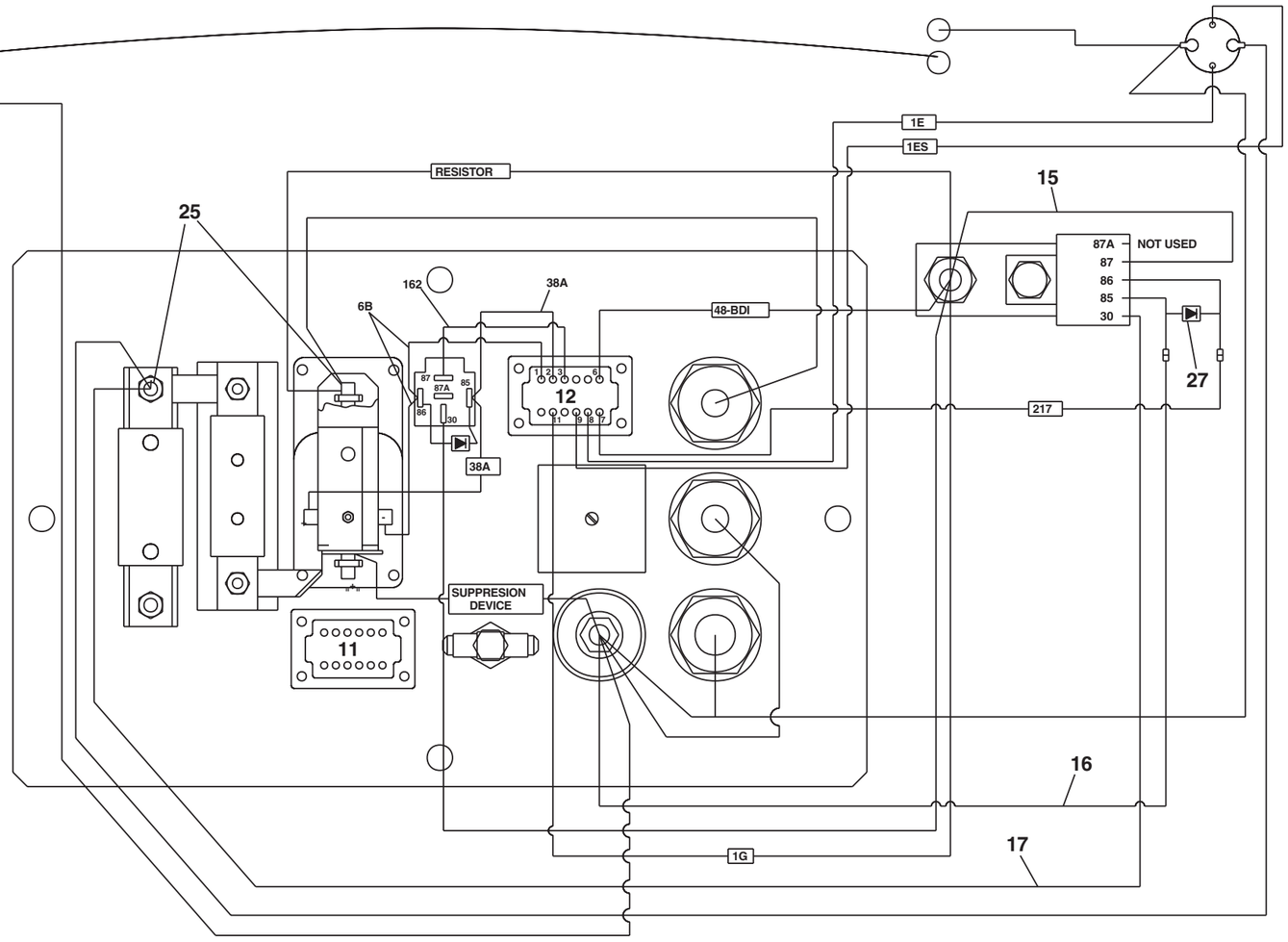


VIEW A-A
(GROUND CONTROL BOX)

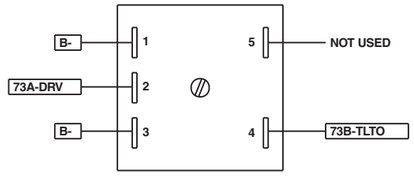




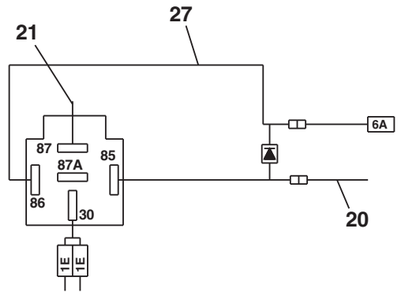
VIEW B-B
(INSIDE PLATFORM CONTROL BOX)



VIEW C-C
(FRONT VIEW OF BULKHEAD)



VIEW E
TIME DELAY RELAY MODULE



VIEW F
TIME DELAY RELAY MODULE

AWA16187C-2

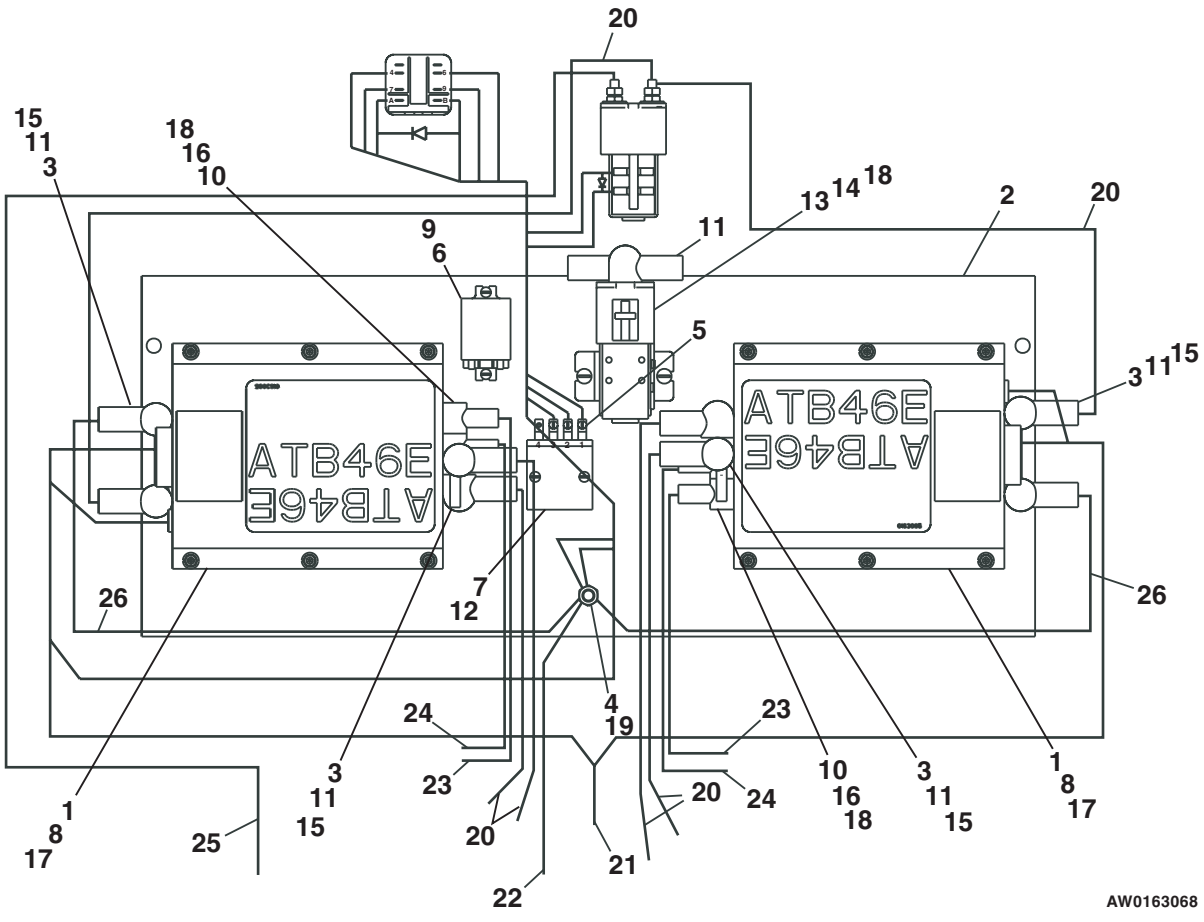
Snorkel International

Page 3 - 4

TITLE General wiring diagram
sheet 2
Snorkel model ATB 46e

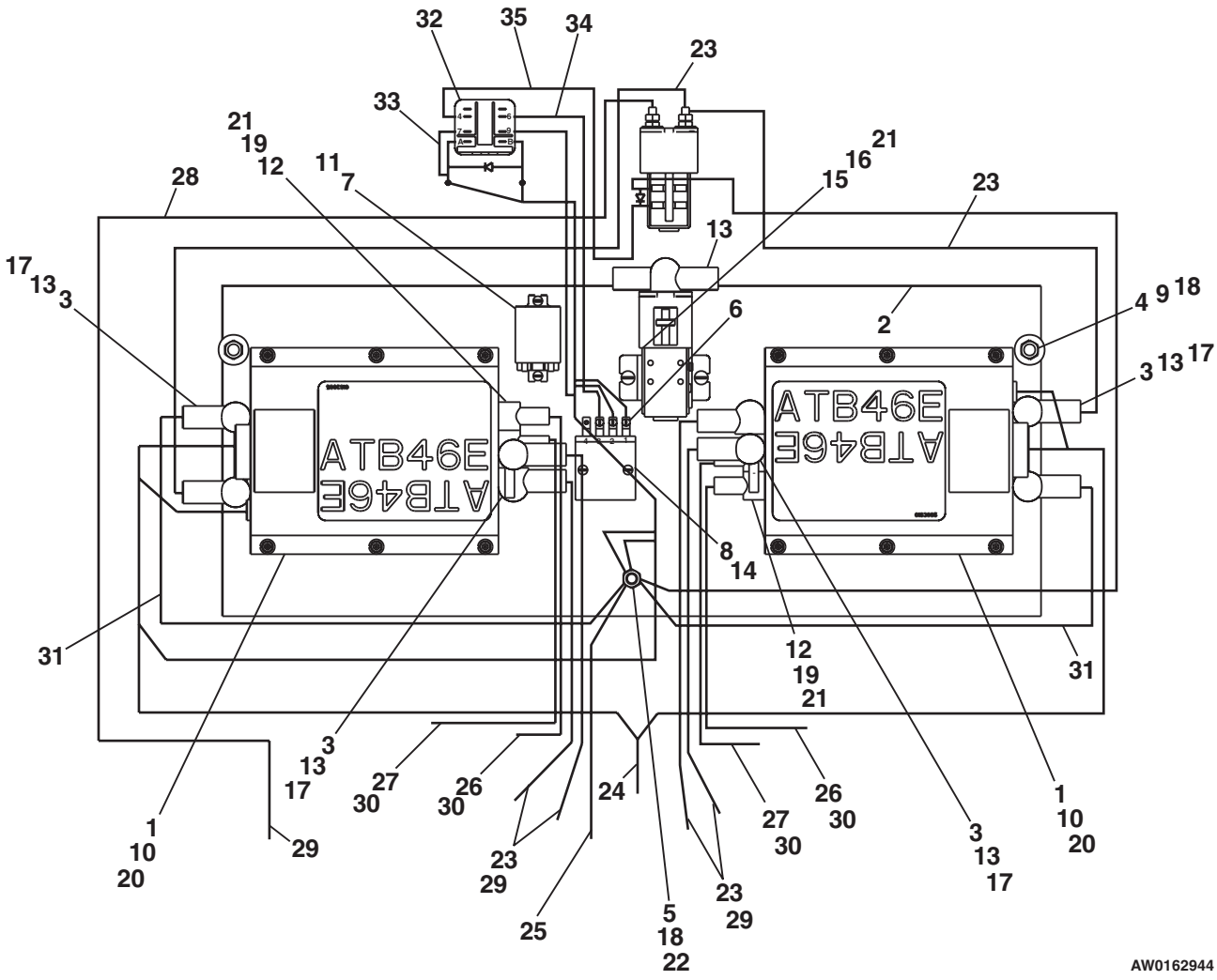
GE drive control, production units

item	part no	qty	description
	0163068	1	GE drive control
1	0163057	2	Traction controller
2	0350628	1	Mounting plate
3	970279	8	Capscrew 5/16-18 x 1-1/2 inch long hex head grade 5
4	972489	1	Capscrew 3/8-16 x 1-1/2 inch long socket flat head
5	974139	3	Machine screw #6-32 x 1/4 inch long round head
6	974439	2	Machine screw #8-32 x 1/2 inch long round head
7	974499	2	Machine screw #8-32 x 1-1/4 inch long round head
8	987099	12	Washer 1/4 medium lock
9	3040214	1	Relay, 12 volt DC
10	3040268	4	Insulator boot
11	3040269	10	Insulator boot
12	3040344	1	Driver
13	3087773	1	Contactor, 12 volt DC continuous coil - (see page 3-20 for parts breakdown)
14	5510017	1	Mounting bracket, contactor
15	5560031	8	Nut 5/16-18 self locking
16	5560034	4	Nut #10-24 self locking
17	5560607	12	Shoulder bolt 1/4-20 x 1/2 inch long
18	5560609	6	Machine screw #10-24 x 1/2 inch long truss head
19	5560611	1	Nut 3/8-16 hex jam
20	0162244	6	Battery wire, red
21	0163149	1	Wire harness, drive
22	0350728	1	Jumper wire
23	0350757	2	Jumper wire
24	0350758	2	Jumper wire
25	0350727	1	Jumper wire
26	0161746	2	Jumper wire



GE drive control, retrofit units

item	part no	qty	description
	0162944	1	GE drive control
1	0163057	2	Traction controller
2	0350628	1	Mounting plate
3	970279	8	Capscrew 5/16-18 x 1-1/2 inch long hex head grade 5
4	970489	2	Capscrew 3/8-16 x 1-1/2 inch long hex head grade 5
5	972489	1	Capscrew 3/8-16 x 1-1/2 inch long socket flat head
6	974139	3	Machine screw #6-32 x 1/4 inch long round head
7	974439	2	Machine screw #8-32 x 1/2 inch long round head
8	974499	2	Machine screw #8-32 x 1-1/4 inch long round head
9	986299	2	Washer 3/8 medium flat
10	987099	12	Washer 1/4 medium lock
11	3040214	1	Relay, 12 volt DC
12	3040268	4	Insulator boot
13	3040269	10	Insulator boot
14	3040344	1	Driver
15	3087773	1	Contactor, 12 volt DC continuous coil - (see page 3-20 for parts breakdown)
	3080034	1	Contactor, 12 volt DC (intermittent coil) - (see page 3-20 for parts breakdown)
16	5510017	1	Mounting bracket, contactor
17	5560031	8	Nut 5/16-18 self locking
18	5560033	3	Nut 3/8-16 self locking
19	5560034	4	Nut #10-24 self locking
20	5560607	12	Shoulder bolt 1/4-20 x 1/2 inch long
21	5560609	6	Machine screw #10-24 x 1/2 inch long truss head
22	5560611	1	Nut 3/8-16 hex jam
23	0162244	6	Battery wire, red
24	0162886	1	Wire harness, drive
25	0350728	1	Jumper wire
26	0350757	2	Jumper wire
27	0350758	2	Jumper wire
28	0350727	1	Jumper wire
29	3040269	5	Insulator boot
30	3040268	4	Insulator boot
31	0161746	2	Jumper wire
32	3040097	6	Sealing plug
33	0351034	1	Diode jumper wire
34	0351035	1	Jumper wire
35	0351042	1	Diode jumper wire
36	3040369	1	Heat sink compound (one ounce)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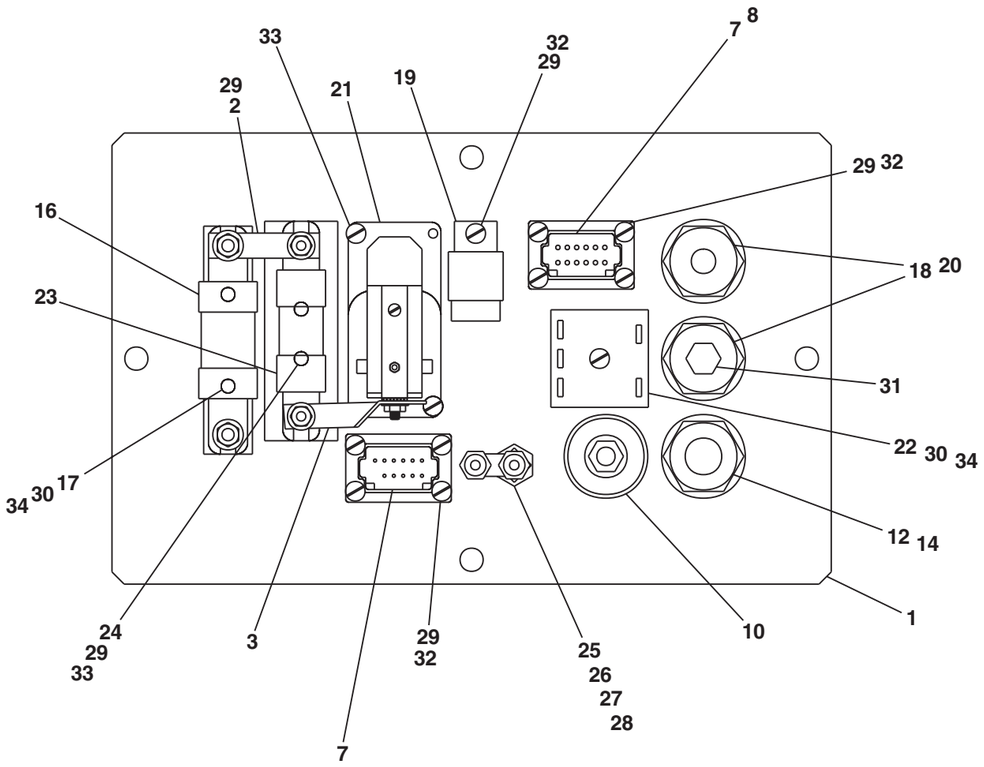
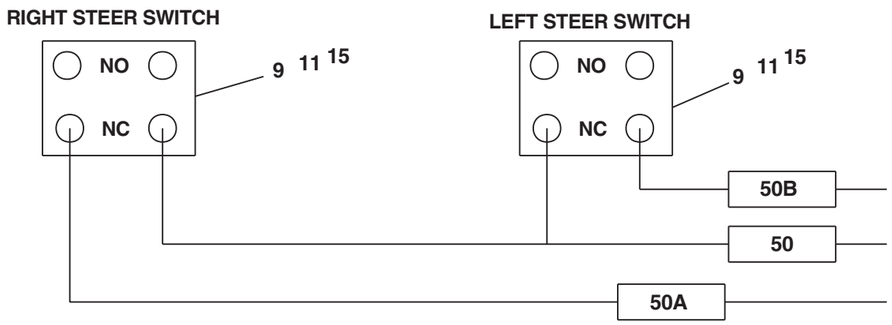
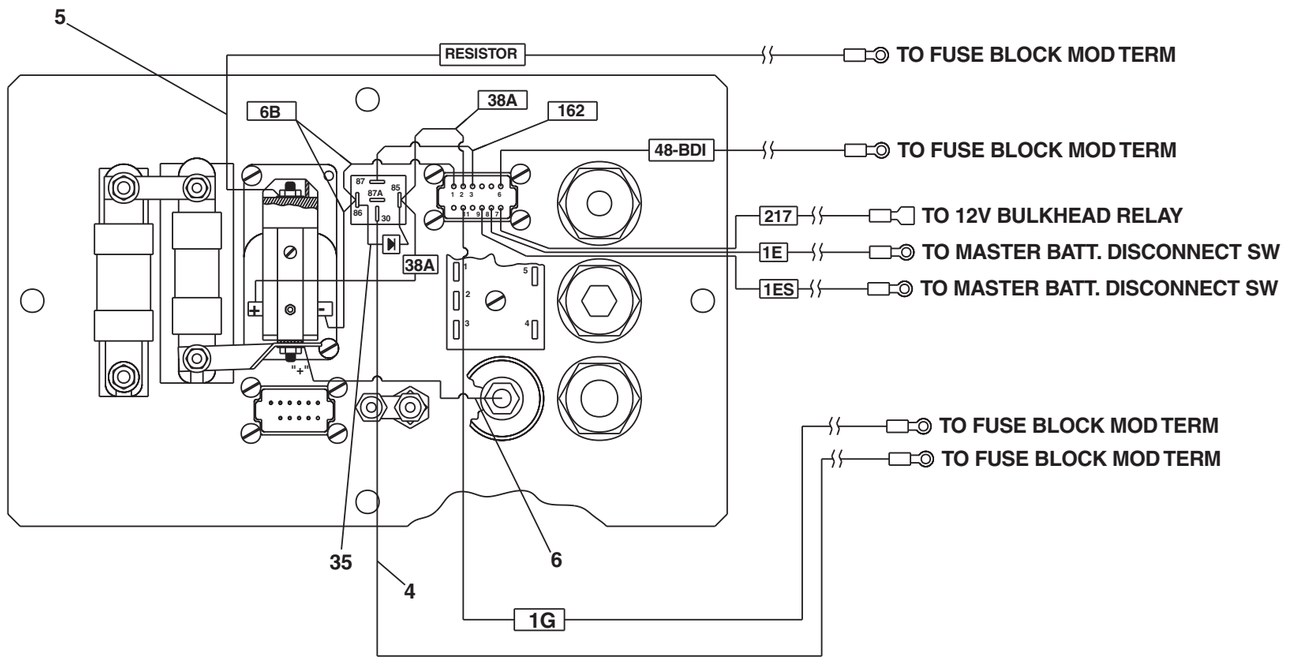
AW0162944

Electric bulkhead

item	part no	qty	description
	0163056	1	Electric bulkhead
1	0160551	1	Bulkhead, electric rear
2	0160558	1	Bar, offset bus
3	0160559	1	Bar, angled bus
4	0163130	1	Jumper wire
5	0163132	1	Wire harness, pump charge up
6	0162362	1	Wire harness, BTR transient suppressor
7	0163047	1	Wire harness, chassis - GE drive
8	0163048	1	Wire harness, auxiliary comps
9	3020058	2	Switch, steer
10	302629	1	Feed thru stud, battery
11	3040070	2	Connector locknut
12	3040110	1	Connector locknut
13	3040268	1	Insulator boot
14	3040295	1	Connector
15	3040300	2	Connector
16	3040332	1	Fuse, 225 amp capacity
17	3040333	1	Fuse block, 225 amp fuse
18	3040387	2	Connector locknut
19	3040469	1	Relay, 12 volt DC
20	3040547	2	Connector
21	3040671	1	Relay, 12 volt DC
22	3040688	1	Time delay module
23	3040692	1	Fuse, 100 amp capacity
24	3040693	1	Fuse block, 100 amp fuse
25	5034404	1	Bulkhead union
26	5036706	1	Swivel nut run tee
27	5037006	1	Swivel nut 90° elbow
28	5074404	1	Bulkhead locknut
29	5560034	13	Nut #10-24 self locking
30	5560004	3	Nut 1/4-20 self locking
31	970889	1	Capscrew 1/2-13 x 1 inch long hex head grade 5
32	5560609	9	Machine screw #10-24 x 1/2 inch long truss head
33	5560649	4	Machine screw #10-24 x 1 inch long truss head
34	0163199	3	Capscrew 1/4-20 x 1 inch long socket head
35	0351029	1	Diode jumper wire





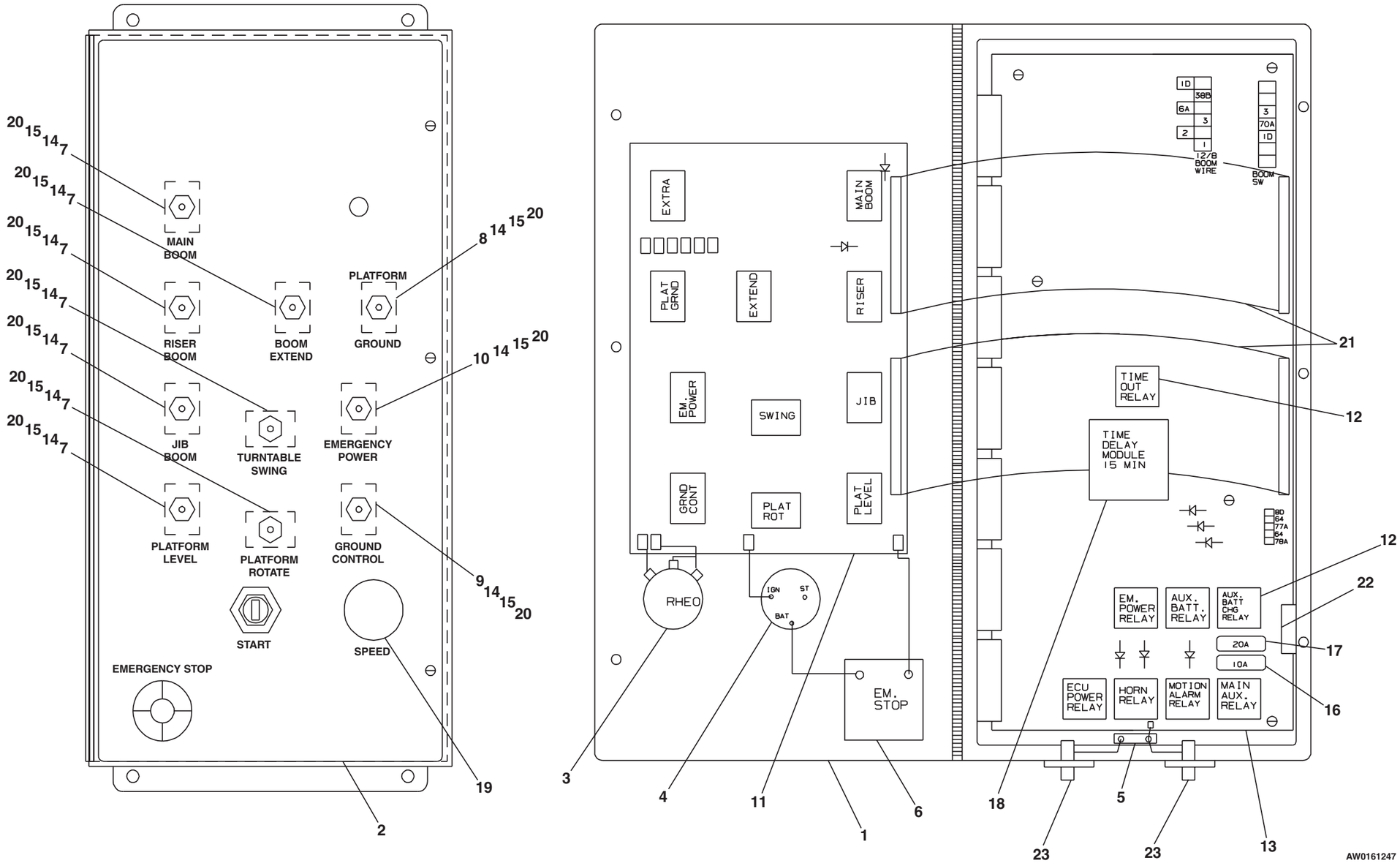


AW0163056

TITLE Electric bulkhead

Snorkel model ATB 46e

Page 3 - 9


MAIN BOOM
RISER BOOM
BOOM EXTEND
PLATFORM GROUND
JIB BOOM
TURNTABLE SWING
EMERGENCY POWER
PLATFORM LEVEL
PLATFORM ROTATE
GROUND CONTROL
START
SPEED
EMERGENCY STOP
EXTRA
MAIN BOOM
PLAT GRND
EXTEND
RISER
EM. POWER
SWING
JIB
GRND CONT
PLAT ROT
PLAT LEVEL
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ID
38B
6A
3
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1
12/8 BOOM WIRE
3
70A
ID
BOOM SW
TIME OUT RELAY
TIME DELAY MODULE 15 MIN
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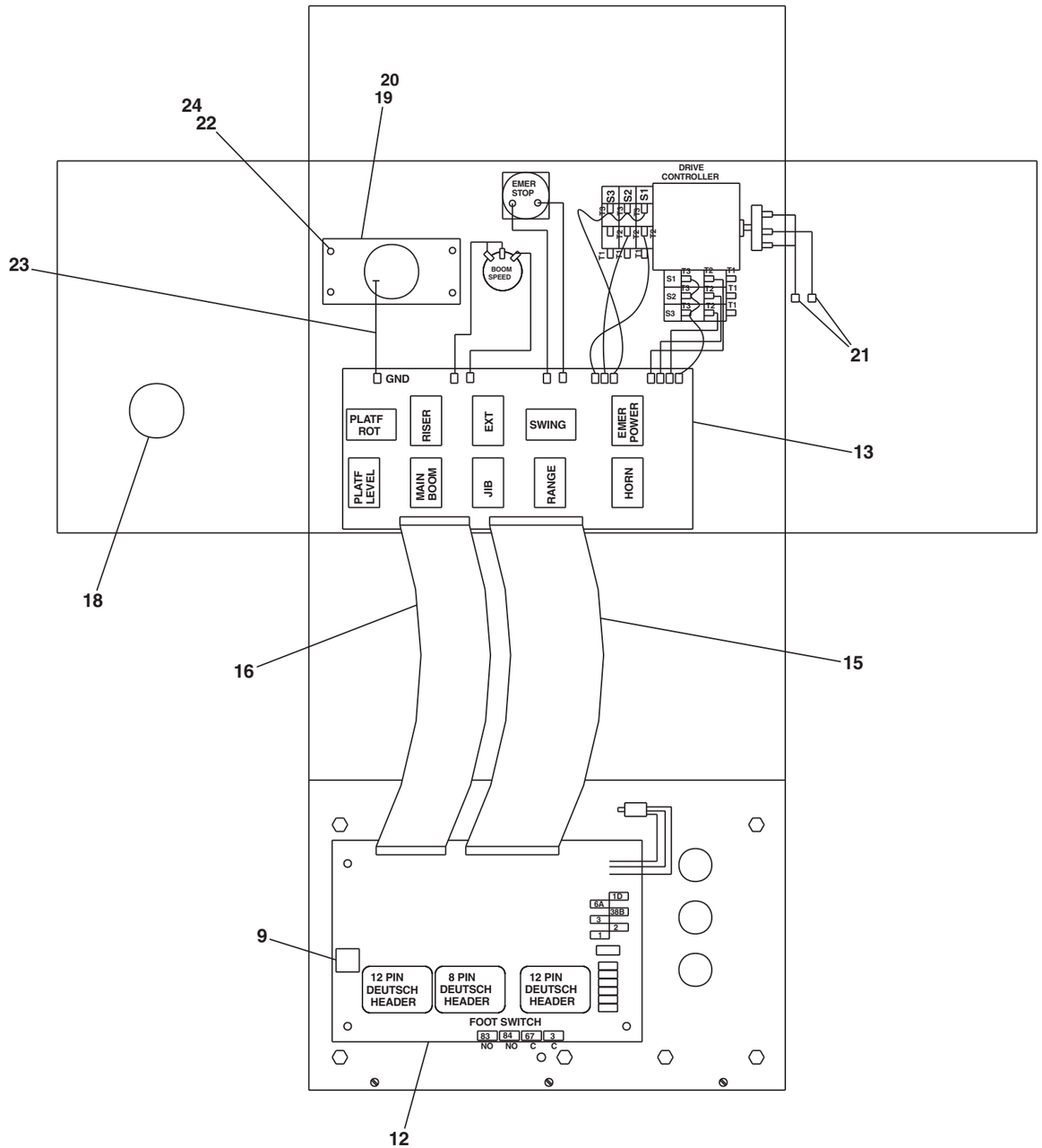
77A
6A
78A
EM. POWER RELAY
AUX. BATT. RELAY
AUX. BATT CHG RELAY
20A
10A
ECU POWER RELAY
HORN RELAY
MOTION ALARM RELAY
MAIN AUX. RELAY
AW0161247

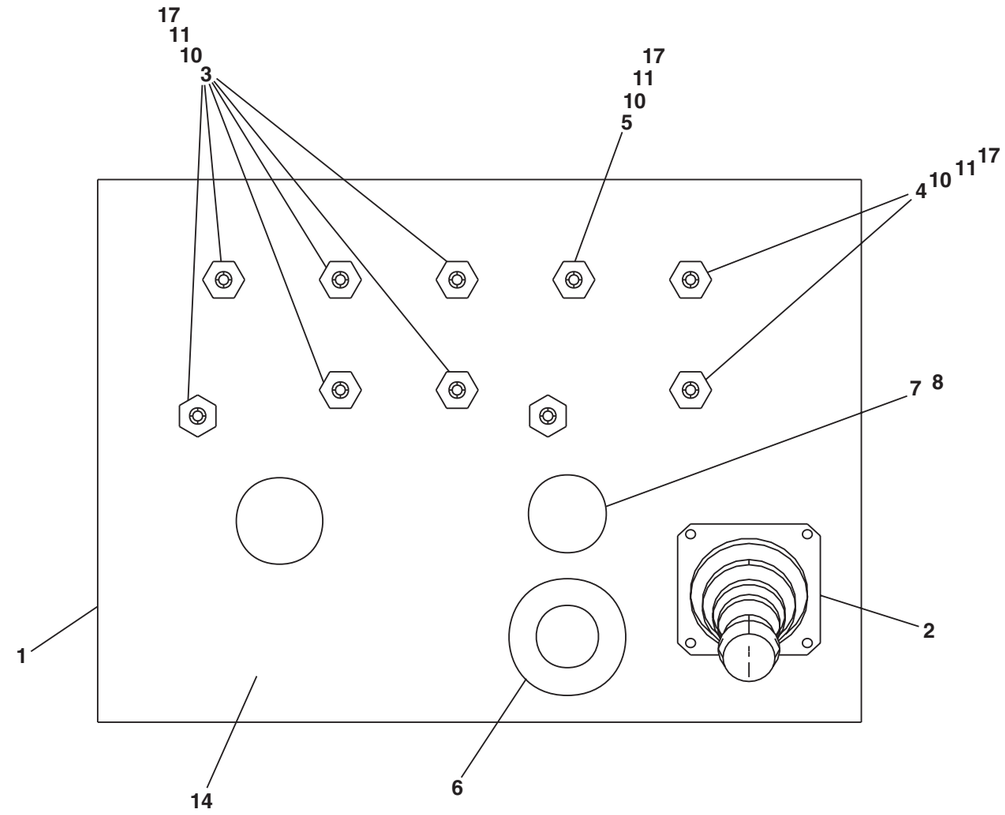
Lower control box

item	part no	qty	description
	0161247	1	Lower control box
1	0161236	1	Box, lower controls
2	0161237	1	Placard, lower control box
3	3040704	1	Rheostat switch
4	3020087	1	Switch, keyed start
	8030044	1	Replacement key
5	3040705	1	Circuit breaker, integral 25 amp capacity
6	3020020	1	Switch, emergency stop push/pull
	3040194	1	Replacement switch knob
7	3020018	7	Switch, toggle
8	3020097	1	Switch, toggle
9	3020036	1	Switch, toggle
10	3020015	1	Switch, toggle
11	3030058	1	Lower control box switch circuit board
12	562326	8	Relay, 12 volt DC
13	3033358	1	Lower control box relay circuit board
14	3020137	28	Screw pin 3/8 inch hex
15	3020138	14	Screw pin 3/16 inch hex
16	3040687	1	Thermal circuit breaker, 20 amp
17	3040686	1	Thermal circuit breaker, 15 amp
18	3040706	1	Time delay module
19	3040348	1	Switch knob
20	3020141	20	Switch seal
21	3049836	2	Ribbon cable, 22 conductor 18 gauge
22	3040694	1	Corrosion inhibitor
23	3040696	2	Voltage feed thru stud

Upper control box

item	part no	qty	description
	0163054	1	Upper control box
1	0163049	1	Box, upper controls
2	3040685	1	Controller, dual axis
	3020033	1	Replacement microswitch
3	3020018	7	Switch, toggle
4	3020015	2	Switch, toggle
5	3020013	1	Switch, toggle
6	3020020	1	Switch, emergency stop push/pull
	3040194	1	Replacement switch knob
7	3040704	1	Rheostat switch
8	3040348	1	Switch knob
9	562326	1	Relay, 12 volt DC
10	3020137	32	Screw pin 3/8 inch hex
11	3020138	17	Screw pin 3/16 inch hex
12	3030056	1	Relay circuit board
13	3030059	1	Upper controls switch circuit board
14	0162923	1	Placard, upper control box top
15	3049835	1	Ribbon cable, 22 conductor 18 gauge
16	3049834	1	Ribbon cable, 18 conductor 18 gauge
17	3020141	24	Switch seal
18	3040694	1	Corrosion inhibitor
19	3070034	1	Fuel gauge
20	0162964	1	Plate
21	3040082	2	Terminal .250 tab male slip-on fully insulated 16/14 wire
22	5560705	4	Nylon spacer
23	0162981	1	Jumper wire
24	984019	4	Nut #4-40 hex





AW0163054

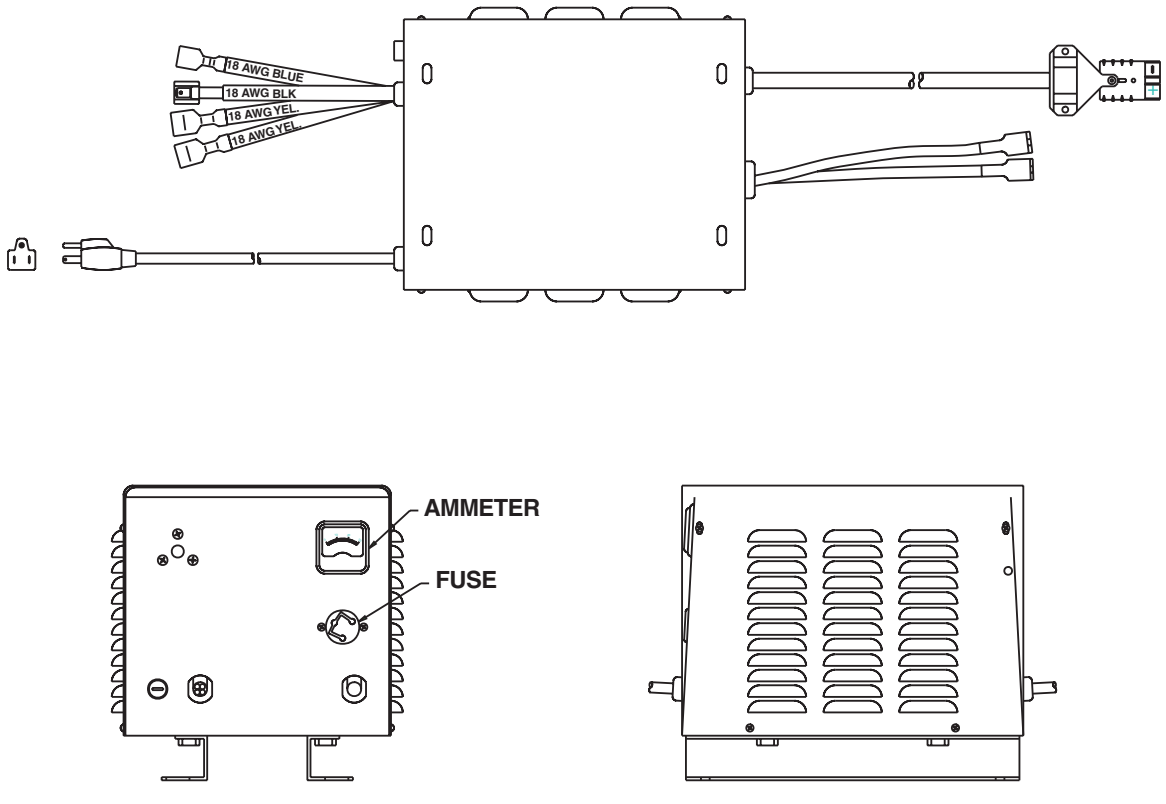
TITLE Upper control box

Snorkel model ATB 46e

Snorkel INTERNATIONAL

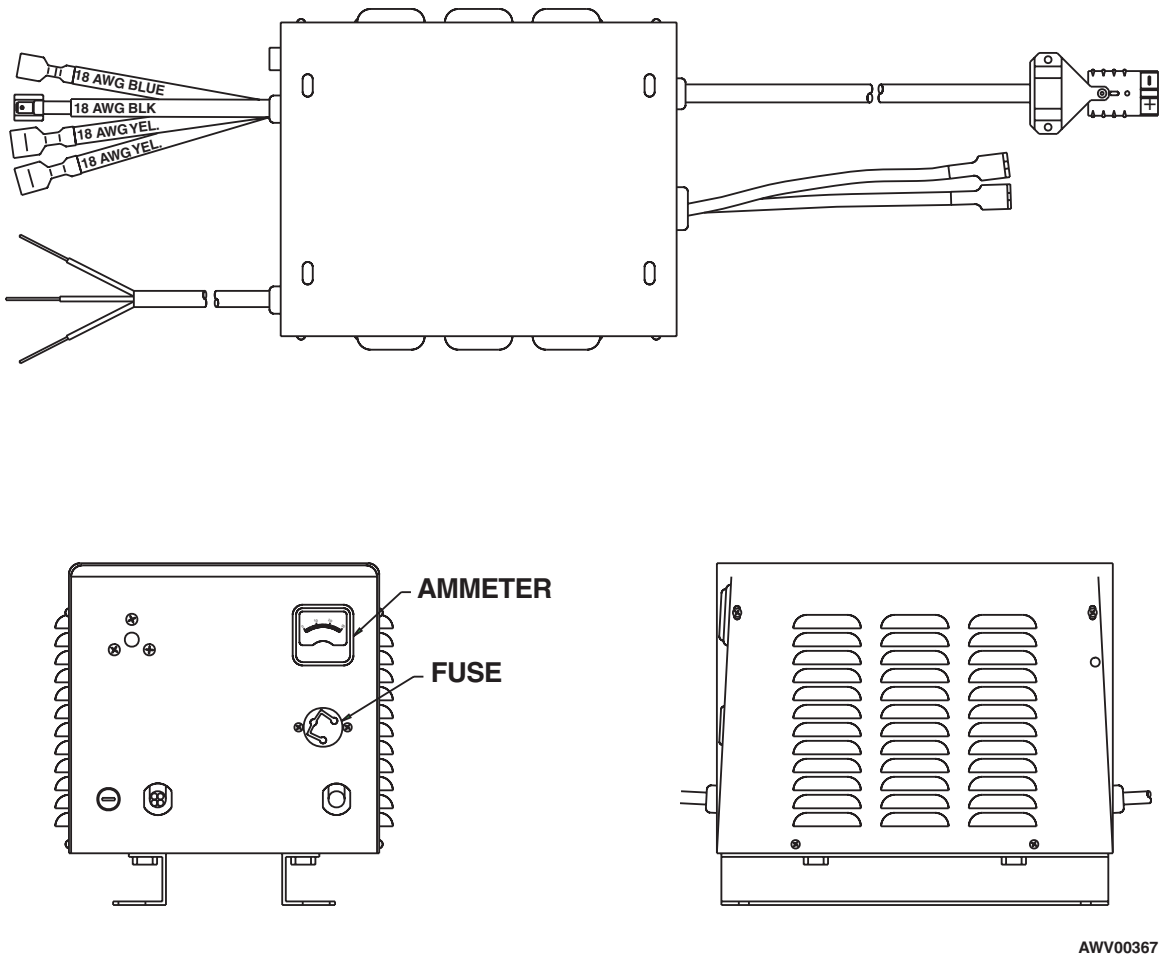
Battery charger, 115 volt

item	part no	qty	description
	3050092	1	Battery charger, 115 VAC - 60 hz 48 volt 25 amp
1	8120049	1	Case
2	8120050	1	Transformer
3	3050057	1	Heatsink with diodes
4	3050058	1	Ammeter
5	3050059	1	Electronic timer
6	3050060	1	Capacitor
7	8120035	1	Strain relief bushing, AC cord
8	3050046	1	Strain relief bushing, DC cord
9	3050061	1	Cordset, AC
10	8120051	1	Cordset, DC
11	3040384	1	Fuse assembly
12	8120052	1	Relay, lockout circuit
13	8120053	1	Wire harness, lockout circuit
14	3050049	1	Fuse holder
15	3050067	1	Fuse
16	8120054	1	Wire harness, lights
17	3050069	2	Strain relief bushing, lights



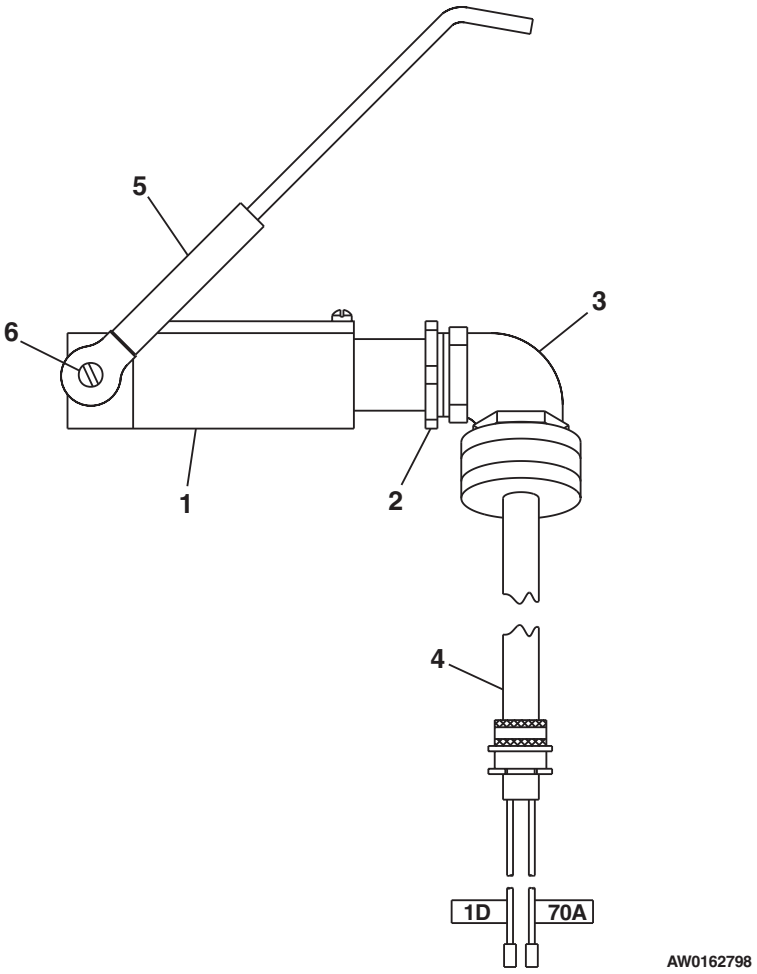
Battery charger, 230 volt

item	part no	qty	description
	3050093	1	Battery charger, 230 VAC - 50 hz 48 volt 25 amp
1	8120055	1	Case
2	8120056	1	Transformer
3	3050060	1	Capacitor
4	3050057	1	Heatsink with diodes
5	3040384	1	Fuse assembly
6	3050058	1	Ammeter
7	8120057	1	Electronic timer
8	8120058	1	Relay, timer kit
9	8120035	1	Strain relief bushing, AC cord
10	3050046	1	Strain relief bushing, DC cord
11	8120059	1	Cordset, AC
12	8120051	1	Cordset, DC
13	8120060	1	Relay, lockout circuit
14	8120053	1	Wire harness, lockout circuit
15	3050049	1	Fuse holder
16	3050067	1	Fuse
17	8120054	1	Wire harness, lights
18	3050069	2	Strain relief bushing, lights



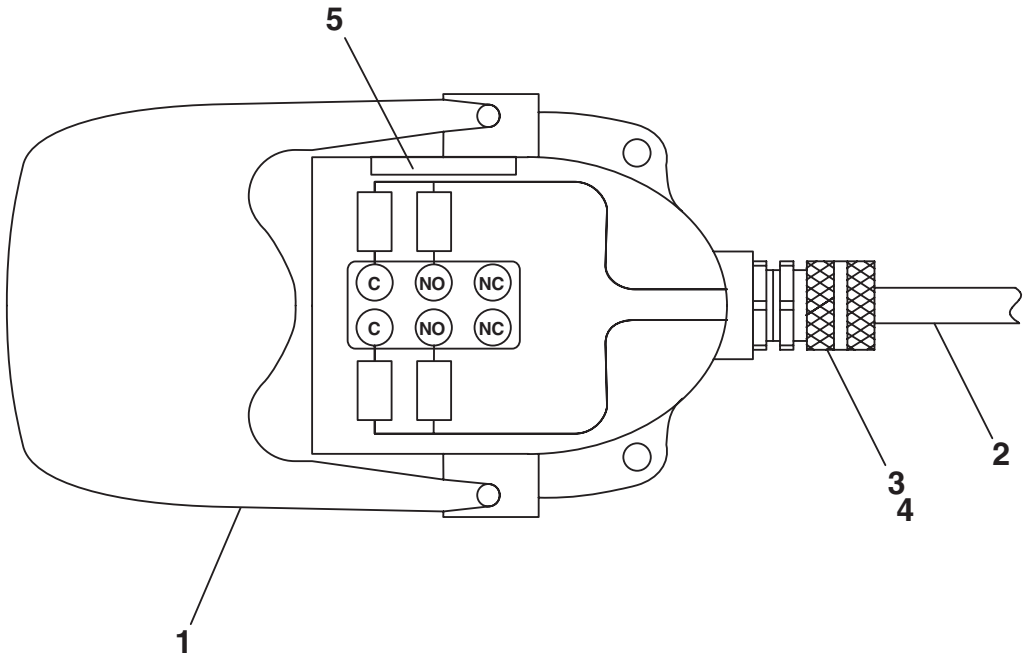
Boom limit switch

item	part no	qty	description
	0162798	1	Boom limit switch
1	3020140	1	Limit switch
2	3040070	1	Connector locknut
3	3040358	1	Connector
4	0161519	1	Wire harness, limit switch
5	0151684	1	Limit switch lever
6	5569887	1	Washer metric M4 flat

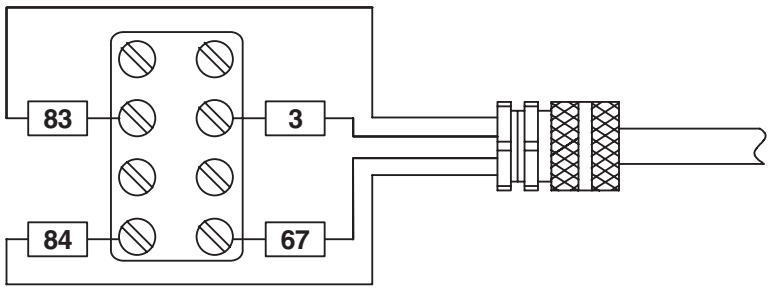


Platform foot switch

item	part no	qty	description
	0161680	1	Platform foot switch
1	3020021	1	Foot switch
	3020037	1	Replacement switch, Square D switch
	3020038	1	Replacement switch, Linemaster switch
2	0161681	1	Wire harness, platform foot switch
3	3040295	1	Connector
4	3040110	1	Connector locknut
5	0070967	1	Corrosion inhibitor



Foot switch shown with Linemaster switch

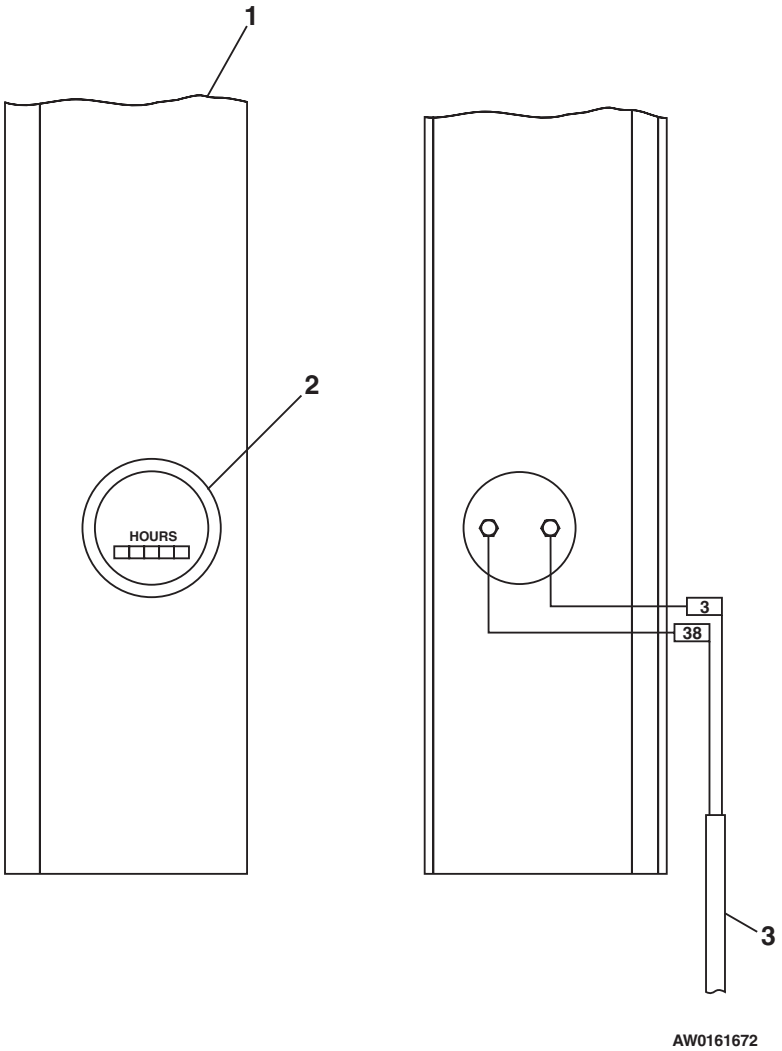


Foot switch wiring shown for Square D switch

AW0161680

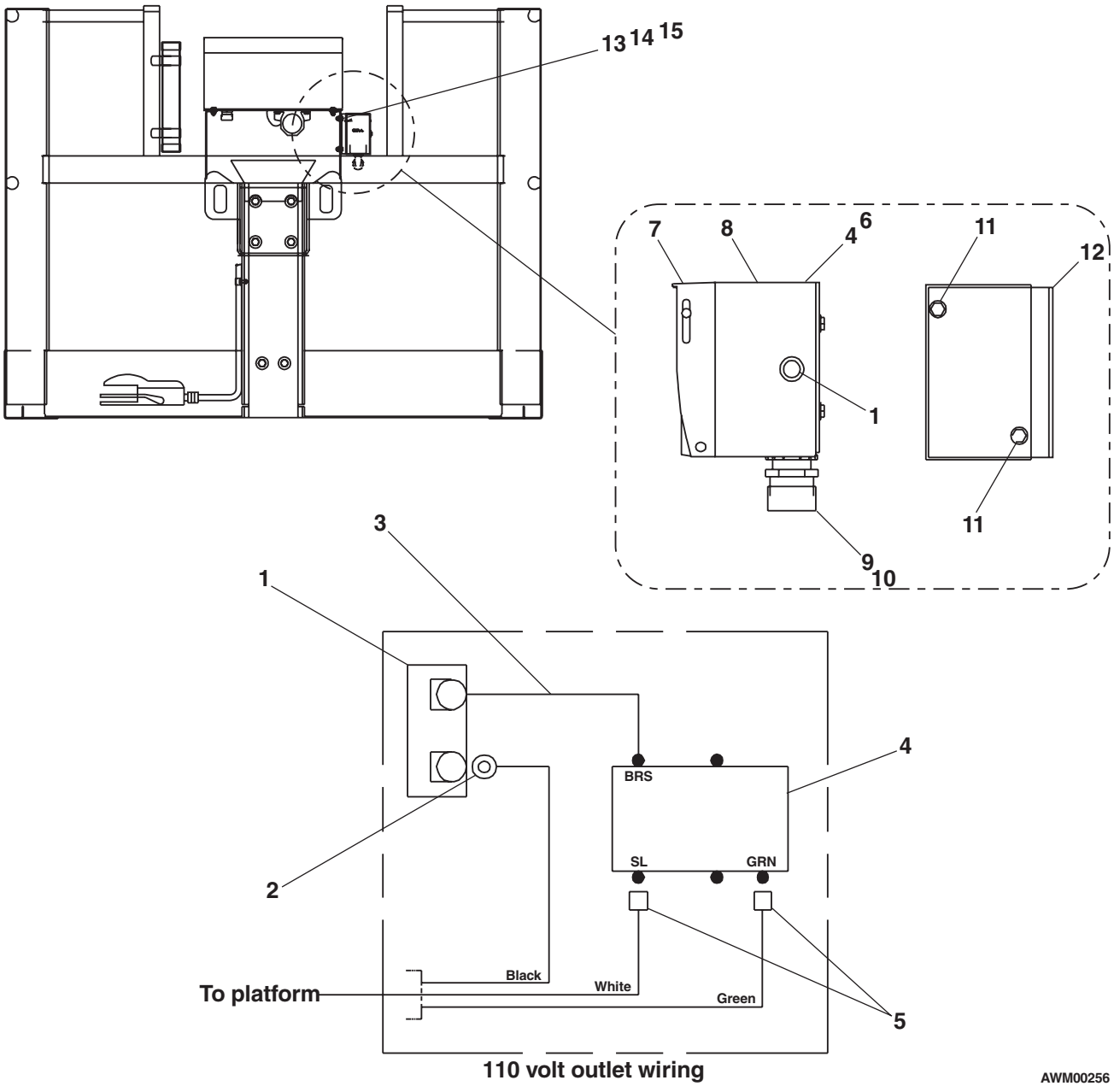
Gauge panel

item	part no	qty	description
	0161672	1	Gauge panel
1	0161059	1	Instrument panel
2	3070001	1	Hour meter
3	0163046	1	Wire harness, gauge panel



Power to platform, 110 volt

item	part no	qty	description
1	3040252	1	Circuit breaker, 15 amp capacity
2	3044854	1	Terminal, ring tongue insulated 12/10 wire
3	0071582	1	Jumper wire
4	3040624	1	Electrical outlet, GFCI - 20 amp capacity
5	3040397	2	Terminal, space 12/10 wire
6	0074379	1	Electrical outlet box
7	3040625	1	Cover, electrical outlet box
8	3040272	1	Plug
9	3040110	1	Connector locknut
10	3040116	1	Connector
11	5560258	2	Machine screw #8 x 3/4 inch long self tapping
12	0162060	1	Mounting plate
13	970099	2	Capscrew 1/4-20 x 5/8 inch long hex head grade 5
14	986019	2	Washer 1/4 medium flat
15	984069	2	Nut 1/4-20 hex

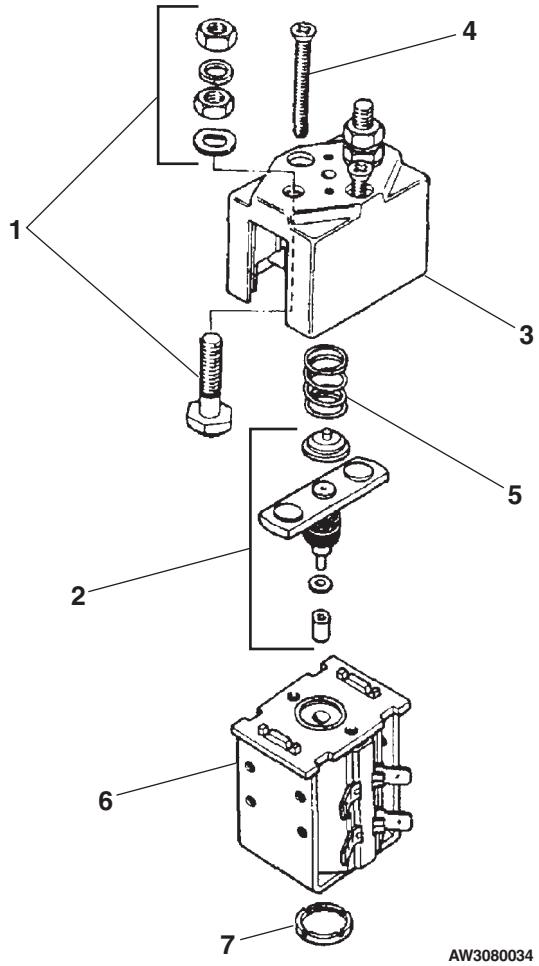


110 volt outlet wiring

AWM00256

Contactor, 12 volt DC

item	part no	qty	description
	3080034	1	Contactor, 12 volt DC (intermittent coil)
	3087773	1	Contactor, 12 volt DC (continuous coil)
1	3087774	2	Fixed contact
2	3087775	1	Moving contact
3	3087776	1	Top cover and magnetic blowouts
4	3087777	2	Top cover fixing screw
5	3087781	1	Return spring (3080034 contactor)
	3087778	1	Return spring (3087773 contactor)
6	3087782	1	Coil and frame (3080034 contactor)
	3087779	1	Coil and frame (3087773 contactor)
7	3087780	1	End cap



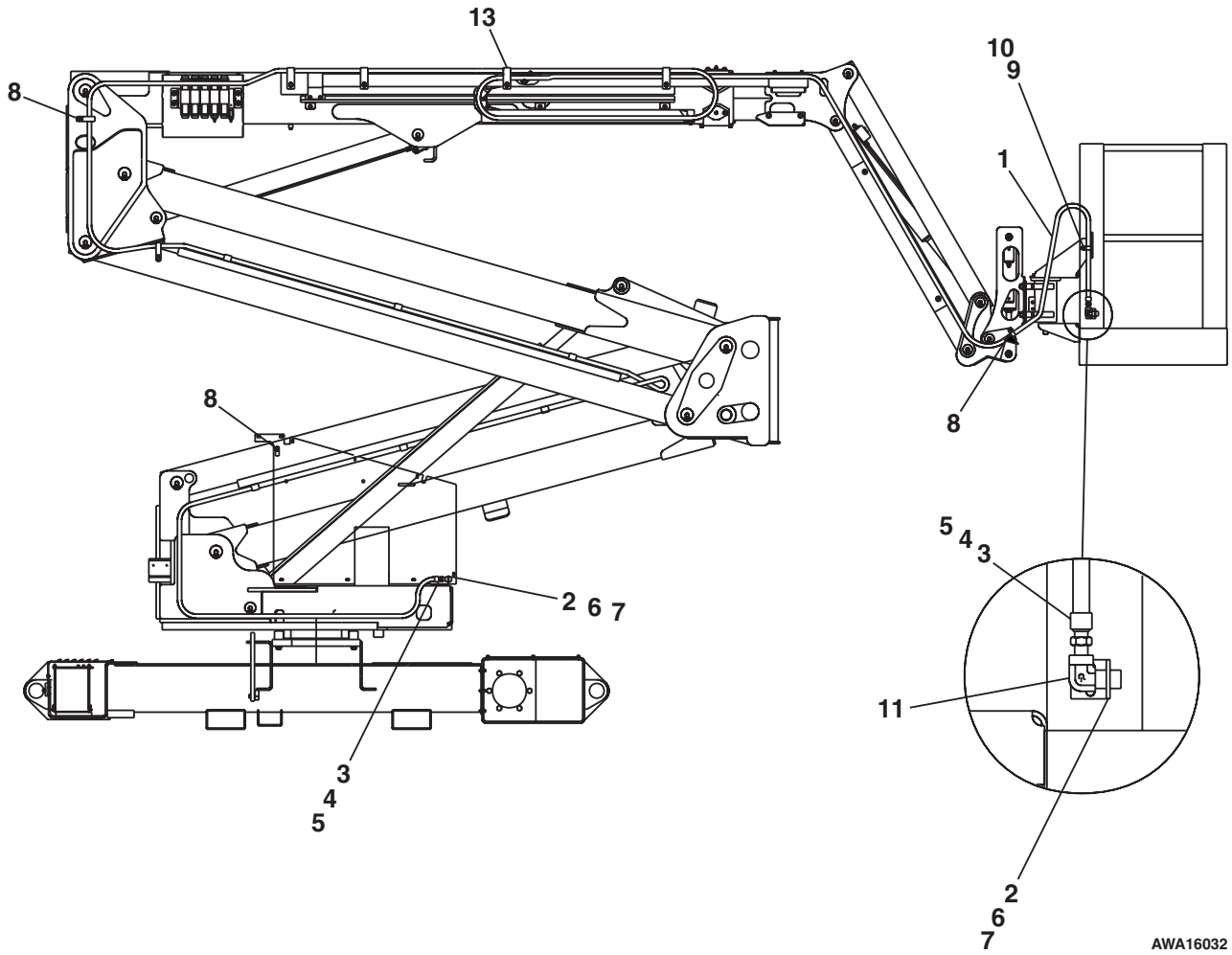
ATB 46e

OmniQuip® TEXTRON

Snorkel® INTERNATIONAL

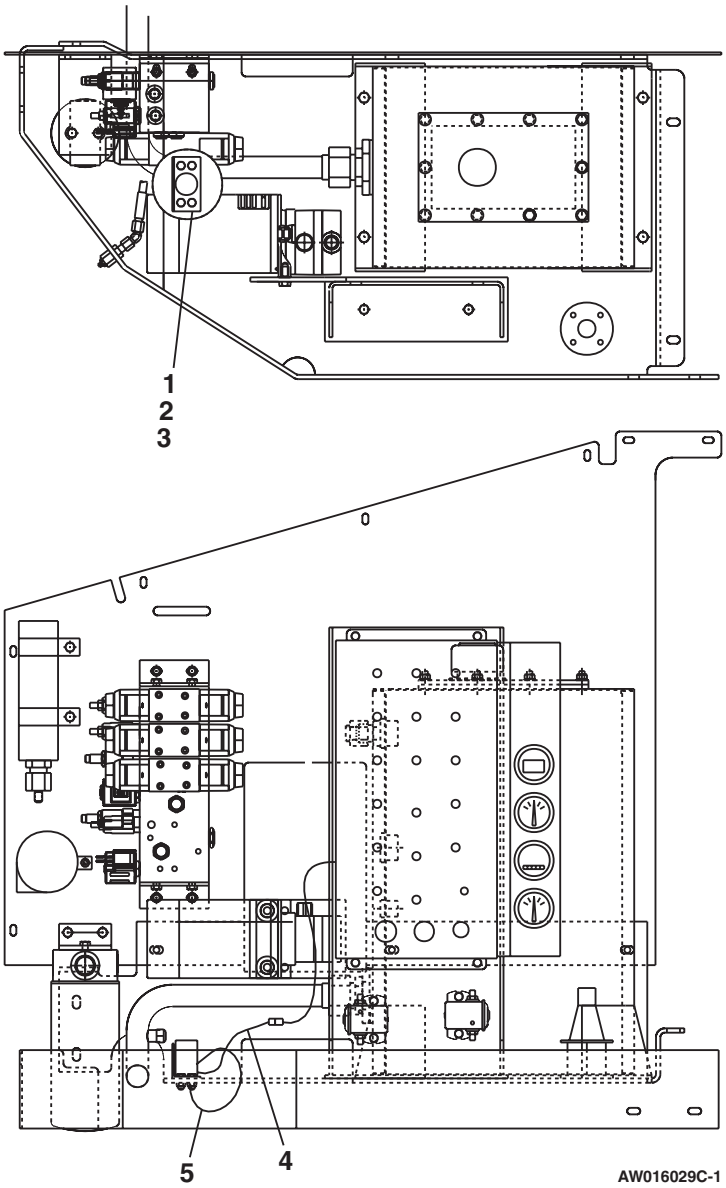
Air line to platform

item	part no	qty	description
1	5010024	1	Air hose, 1/2 inch diameter x 66 feet long
2	0151743	2	Angle, air hose
3	5260012	2	Pipe fitting, 1/2 inch diameter x 3/8 inch NPT
4	7714203	2	Hex head plug
5	5550010	2	Clamp
6	5560004	4	Nut 1/4-20 self locking
7	970029	4	Capscrew 1/4-20 x 3/4 inch long hex head grade 5
8	5093030	3	Clamp
9	5093006	1	Clamp
10	5560683	1	Capscrew 3/8-16 x 5/8 inch long hex head grade 5
11	5031003	1	Street elbow 90° 3/8 NPT
12	5560033	1	Nut 3/8-16 self locking
13	0162158	11	Clamp



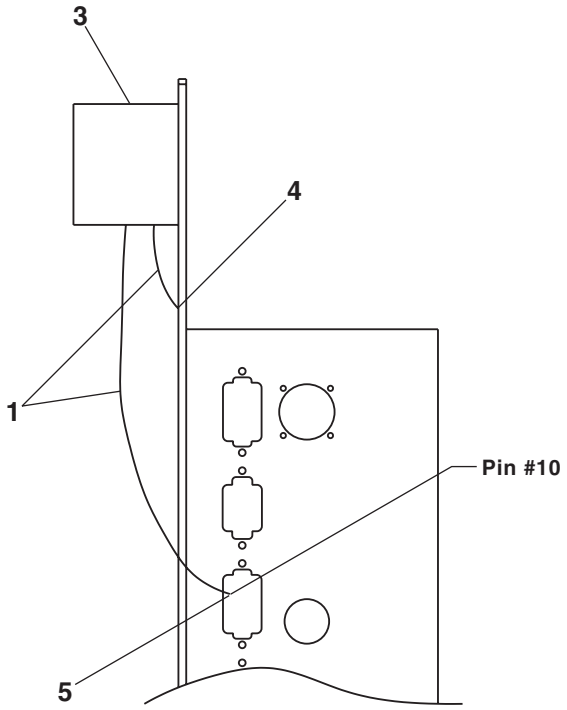
Motion alarm

item	part no	qty	description
			Any function alarm or descent only alarm
1	3040593	1	Alarm
2	5560648	4	Machine screw #10-24 x 3/4 inch long truss head
3	5560034	4	Nut #10-24 self locking
4	0152536	1	Jumper wire
5	0152537	1	Jumper wire

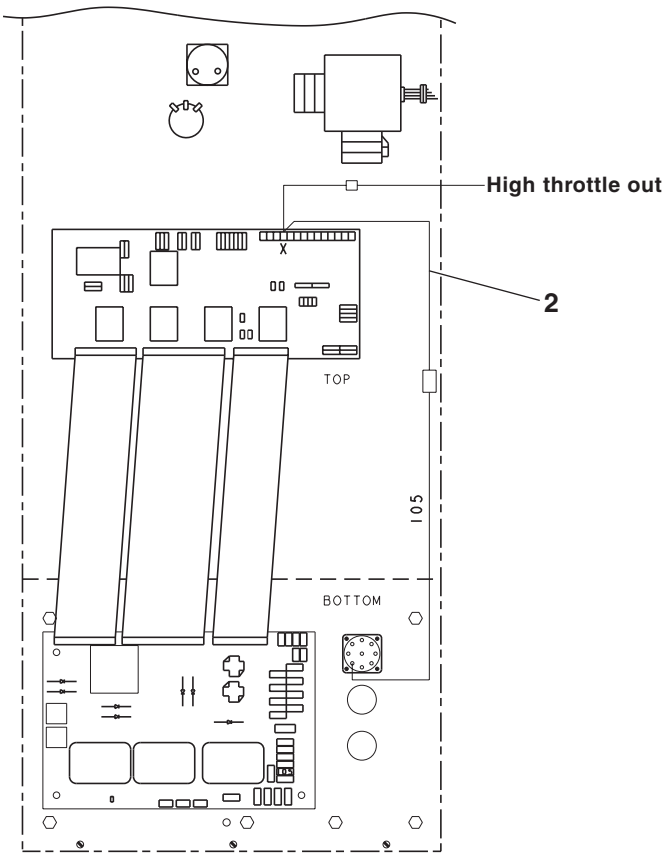


Motion alarm, drive

item	part no	qty	description
1	3011601	1	Wire 16 gauge single conductor x 30 inch long
2	0162305	1	Jumper wire, upper control box
3	3040593	1	Alarm
4	3044162	1	Terminal 1/4 stud insulated 16/14
5	3040342	1	Socket contact



Lower control box

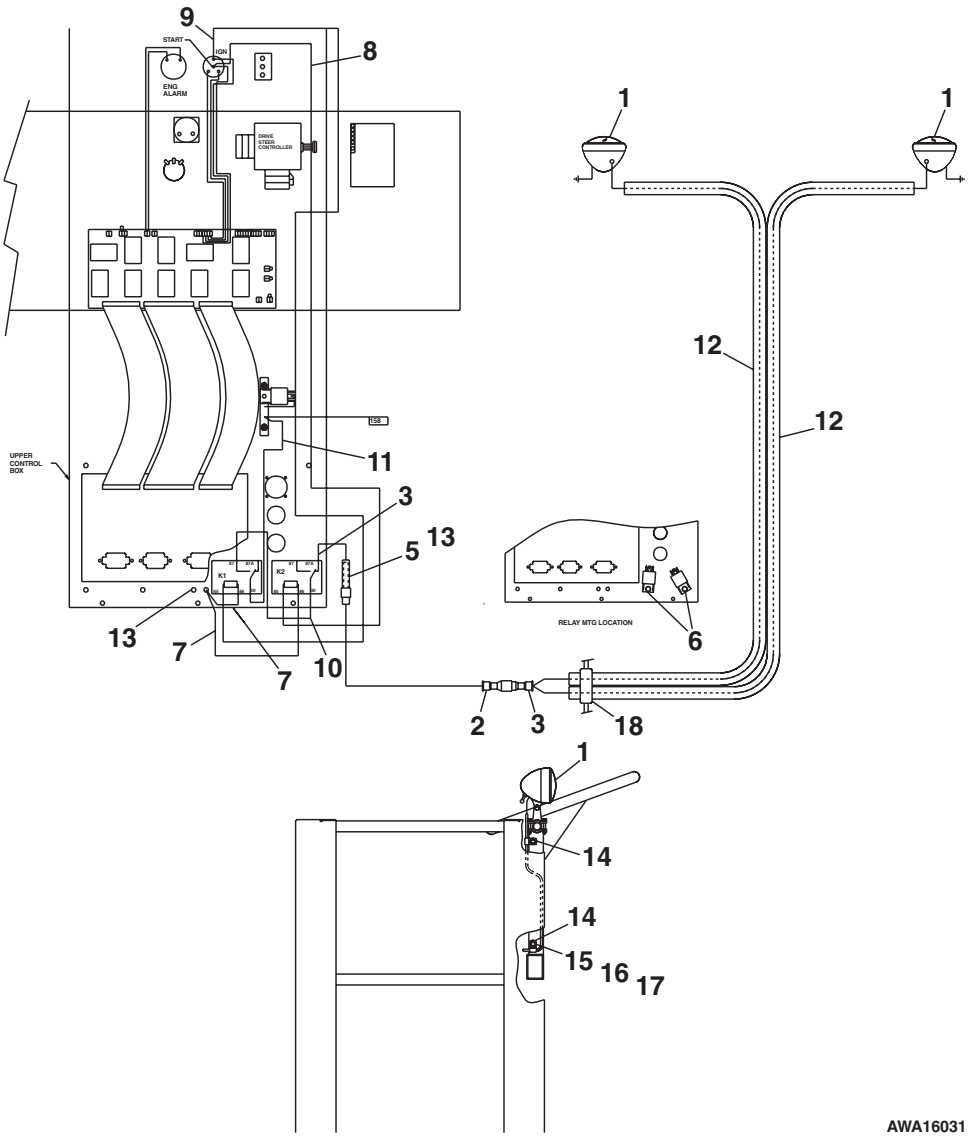


Upper control box

AWA16103

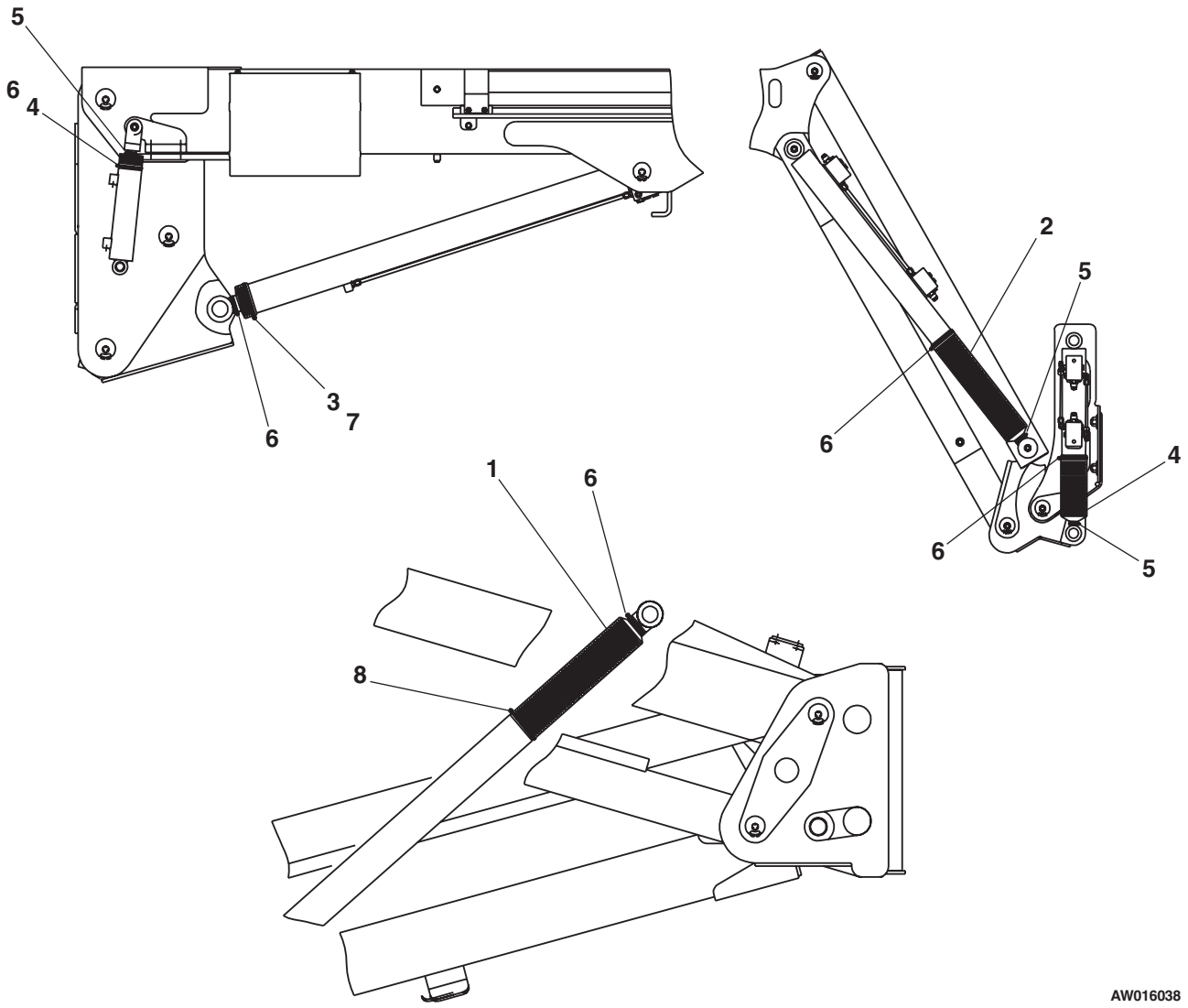
Platform lights

item	part no	qty	description
1	3064413	2	Light, incandescent with clamp bracket
	3067620	2	Light, halogen with clamp bracket
2	3040064	2	Terminal .250 tab male slip-on fully insulated 12/10 wire
3	3040065	3	Terminal .250 tab female slip-on fully insulated 12/10 wire
4	3011201	1	Wire 12 gauge single conductor x 72 inch long
5	3040038	1	Fuse holder, in-line
6	3040469	2	Relay, 12 volt DC
7	0150639	2	Jumper wire
8	0071556	1	Jumper wire
9	0140390	1	Jumper wire
10	0130279	1	Jumper wire
11	0140365	1	Jumper wire
12	3090019	1	Flexgard tube, 72 inch long
13	3040039	1	Fuse, 10 amp capacity
14	5093019	5	Clamp
15	970029	5	Capscrew 1/4-20 x 3/4 inch long hex head grade 5
16	987099	5	Washer 1/4 medium lock
17	986019	5	Washer 1/4 medium flat
18	5569711	1	Grommet



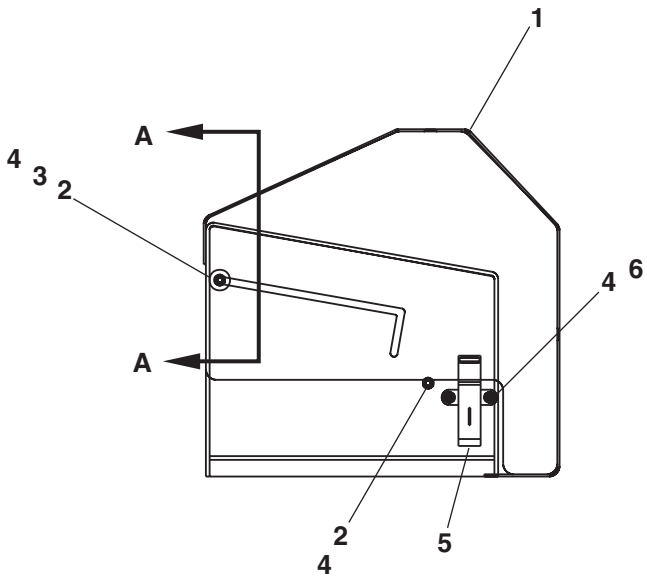
Sandblast kit

item	part no	qty	description
1	0161700	1	Bellows, riser cylinder
2	0161701	1	Bellows, jib cylinder
3	0161702	1	Bellows, lift cylinder
4	0161703	2	Bellows, level cylinder
5	5550020	3	Clamp
6	5550030	5	Clamp
7	5550050	1	Clamp
8	5550060	1	Clamp

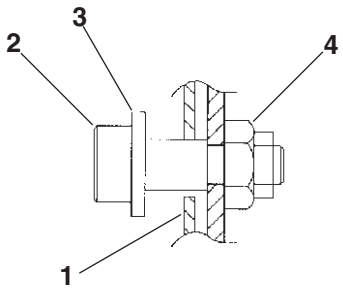


Upper control box cover

item	part no	qty	description
1	0162297	1	Cover, upper control box
2	5560304	4	Shoulder screw with locking pettet
3	5560629	2	Washer metric M6 flat
4	5560034	6	Nut #10-24 self locking
5	5510015	1	Tension latch
6	974659	2	Machine screw #10-24 x 1/2 inch long round head



Upper controls box

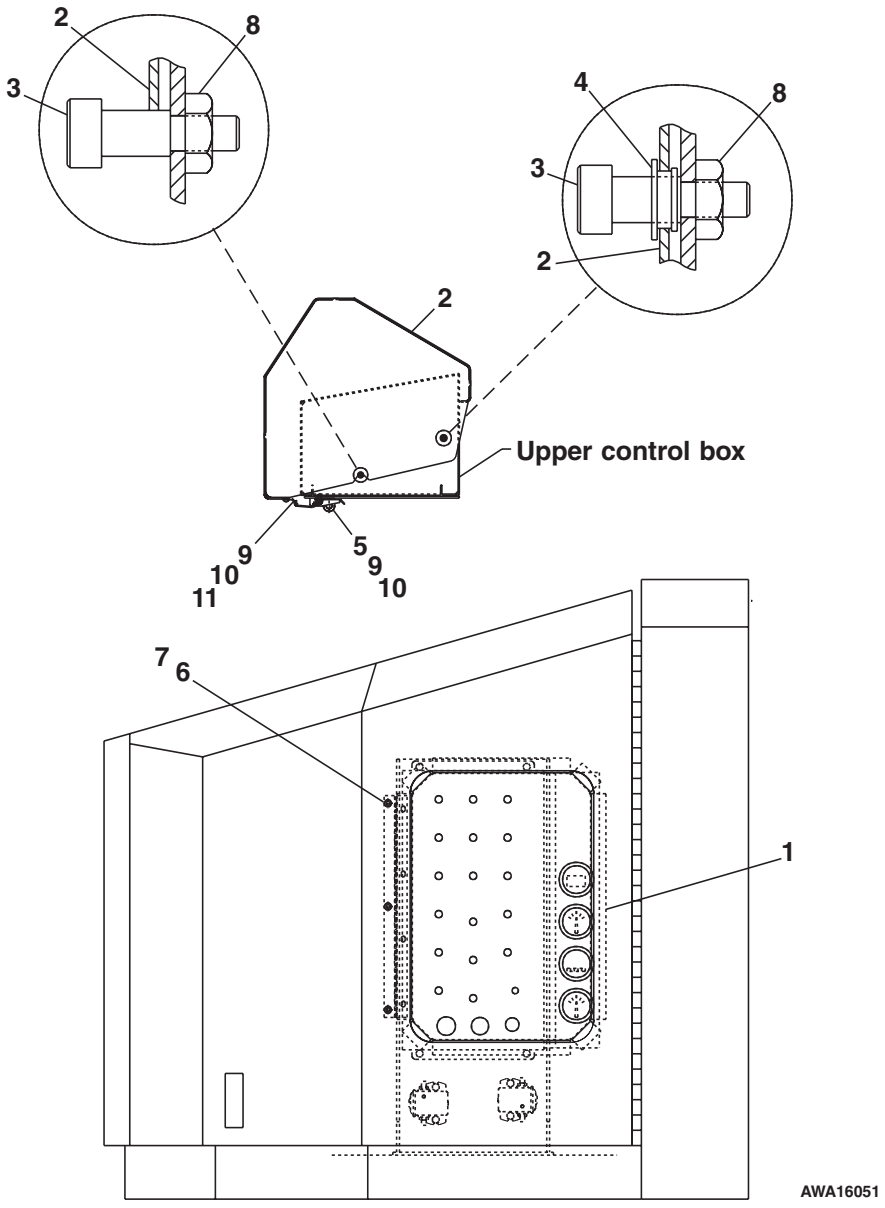


View A-A

AWA16102

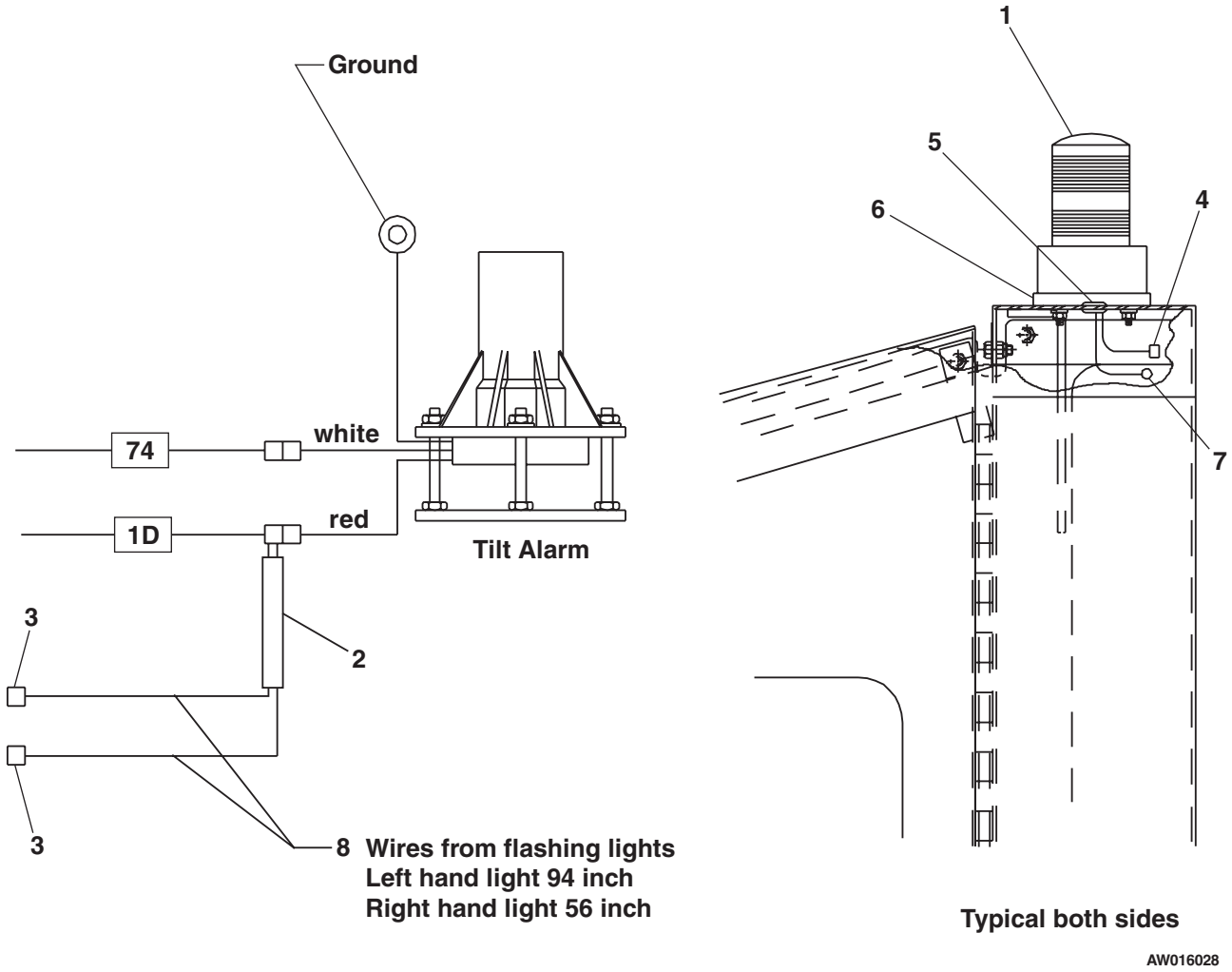
Vandalism kit

item	part no	qty	description
1	0161691	1	Door
2	0161695	1	Cover, upper control box
3	5560304	4	Shoulder screw with locking pettet
4	2570004	2	Bearing
5	5510015	1	Tension latch
6	970009	3	Capscrew 1/4-20 x 1/2 inch long hex head grade 5
7	5560004	3	Nut 1/4-20 self locking
8	984049	4	Nut #10-24 hex
9	5560034	4	Nut #10-24 self locking
10	974679	4	Machine screw #10-24 x 5/8 inch long round head
11	5510016	1	Keeper



Lights, warning

item	part no	qty	description
1	3060083	1	Warning light, amber lens
	3060084	1	Warning light, red lens
	8160047	1	Replacement bulb
2	3090019	1	Flexgard tube, 150 inch long
3	3040082	2	Terminal .250 tab male fully insulated 16/14 wire
4	3040083	2	Terminal .250 tab female fully insulated 16/14 wire
5	5569003	2	Grommet
6	3040113	2	Mounting base
7	3044164	2	Terminal #10 ring tongue insulated 16/14 wire
8	3011601	1	Wire 16 gauge single conductor x 150 inch long



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LIMITED WARRANTY

Snorkel warrants each new machine manufactured and sold by it to be free from defects in material and workmanship for a period of one (1) year from date of delivery to a Customer or for one year after the machine has been placed in first service in a Dealer rental fleet, whichever comes first. Any part or parts which, upon examination by the Snorkel Service Department, are found to be defective, will be replaced or repaired, at the sole discretion of Snorkel, through its local Authorized Dealer at no charge.

Snorkel further warrants the structural components; specifically, the mainframe chassis, turntable, booms and scissor arms, of each new machine manufactured by it to be free from defects in material and workmanship for an additional period of four (4) years. Any such part or parts which, upon examination by the Snorkel Service Department, are found to be defective will be replaced or repaired by Snorkel through its local Authorized Dealer at no charge; however, any labor charges incurred as a result of such replacement or repair will be the responsibility of the Customer or Dealer.

The Snorkel Service Department must be notified within forty-eight (48) hours of any possible warranty situation during the applicable warranty period. Personnel performing warranty repair or replacement must obtain specific approval by Snorkel Service Department prior to performing any warranty repair or replacement.

Customer and Dealer shall not be entitled to the benefits of this warranty and Snorkel shall have no obligations hereunder unless the “Pre-Delivery and Inspection Report” has been properly completed and returned to the Snorkel Service Department within ten (10) days after delivery of the Snorkel product to Customer or Dealer’s rental fleet. Snorkel must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer’s rental fleet during the warranty period.

At the direction of the Snorkel Service Department, any component part(s) of Snorkel products to be replaced or repaired under this warranty program must be returned freight prepaid to the Snorkel Service Department for inspection. All warranty replacement parts will be shipped freight prepaid (standard ground) from the Snorkel Service Department or from Snorkel’s Vendor to Dealer or Customer.

REPLACEMENT PARTS WARRANTY

Any replacement or service part made or sold by Snorkel is not subject to the preceding **Limited Warranty** beyond the normal warranty period of the machine upon which the part was installed.

THIS WARRANTY EXCLUDES AND SNORKEL DOES NOT WARRANT:

1. Engines, motors, tires and batteries which are manufactured by suppliers to Snorkel, who furnish their own warranty. Snorkel will, however, to the extent permitted, pass through any such warranty protection to the Customer or Dealer.
2. Any Snorkel product which has been modified or altered outside Snorkel’s factory without Snorkel’s written approval, if such modification or alteration, in the sole judgment of Snorkel’s Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Snorkel product or any component thereof.
3. Any Snorkel product which has been subject to misuse, improper maintenance or accident. “Misuse” includes but is not limited to operation beyond the factory-rated load capacity and speeds. “Improper maintenance” includes but is not limited to failure to follow the recommendations contained in the Snorkel Operation, Maintenance, Repair Parts Manuals. Snorkel is not responsible for normal maintenance, service adjustments and replacements, including but not limited to hydraulic fluid, filters and lubrication.
4. Normal wear of any Snorkel component part(s). Normal wear of component parts may vary with the type application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications.
5. Any Snorkel product that has come in direct contact with any chemical or abrasive material.
6. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits or increased cost.

This warranty is expressly in lieu of all other warranties, representations or liabilities of Snorkel, either expressed or implied, unless otherwise amended in writing by Snorkel’s President, Vice President-Engineering, Vice President-Sales or Vice President-Marketing.

SNORKEL MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY. SNORKEL MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.

The Customer shall make all warranty claims through its local Authorized Dealer and should contact the Dealer from whom the Snorkel product was purchased for warranty service. Or, if unable to contact the Dealer, contact the Snorkel Service Department for further assistance.

Effective July 1995

Maintenance information

The parts drawings located in the repair parts sections, are designed for use as a guide for proper disassembly of the machine and components as well as for parts replacement. Always refer to the hydraulic system installation drawings and the electrical wiring diagram before removing or disassembling associated parts.

⚠CAUTION

Do not attempt to disconnect or remove any hydraulic line before reading and understanding all text concerning the system hydraulics. In most cases, disassembly of the machine will be obvious from the illustration.

When disassembling or reassembling components, complete the procedural steps in sequence. Do not partially disassemble or assemble one part, then start on another. Always check your work to assure that nothing has been overlooked.

The following list is a gentle reminder when disassembling or assembling the machine.

- Always be conscious of weight.
- Never attempt to lift heavy objects without the aid of a mechanical device.
- Do not allow heavy objects to rest in an unstable condition.
- Always make sure work platform is in stowed position - blocked or the weight removed by a suitable lifting device before disconnecting the hydraulic hose from the motor/pump unit to the lift cylinder.
- When raising a portion of the machine, be sure that adequate blocking is properly positioned - Do not depend on lifting device to hold and secure weight.
- If a part resists removal, check to see if all fasteners, electrical wiring, hydraulic lines, etc., have been removed or that other parts are not interfering.

Parts should be thoroughly inspected before restoring to service at the time of reassembly. Burrs, nicks or scratches may be removed from machined surfaces by honing or polishing with #600 crocus cloth, followed by a thorough cleaning in an approved cleaning solvent, and blown dry with compressed air. Do not alter the contour of any part. If this operation does not restore the part to a serviceable condition, replace the part. Replace all O-rings, seals, and gaskets at reassembly. Use new roll pins or cotter pins. Dip all packing rings and seals in hydraulic oil before reassembling in cylinder and manifold installations. Replace any part having imperfect threads. In general, units that have been disassembled can be reassembled by reversing the order of disassembly.

Remember that the service life of a machine can be increased by keeping dirt and foreign materials out of the vital components. Precautions have been taken to safeguard against this; shields, covers, seals and filters are provided to keep air and oil supplies clean; however, these items must be maintained on a scheduled basis in order to function properly.

At any time air or oil lines are disconnected, clean surrounding areas as well as the opening and fittings themselves. As soon as a line or component is disconnected, cap or cover all openings to prevent the entry of dirt or foreign materials.

New parts should remain in their container until they are ready to be used.

Clearly mark or tag hydraulic lines and electrical wiring connections when disconnecting or removing them from unit. This will assure that they are correctly reinstalled.

Proper assembly is critical to the successful rebuilding of any unit. Carefully inspect any parts which are to be reused. If in doubt, replace.

"SAFETY FIRST" is a good slogan.

Replace any guards and protective devices that have been removed to carry out maintenance and repair work.

Snorkel has established a Preventive Maintenance Schedule that includes Daily Maintenance (Operator's Inspection), 90 Day or 150 Hour (frequent) Maintenance and Yearly or 500 Hour (annual) Maintenance, to detect any defective, damaged or improperly secured parts and provide information regarding lubrication and other minor maintenance items.

The Maintenance Schedule following, outlines the requirements of these maintenance checks for each time interval. The Operator's Daily Maintenance and inspection must be performed by a trained operator. All other maintenance and inspections must be performed by a trained service technician only.

Note that the 90 Day or 150 hour (frequent) and yearly or 500 hour (annual) Maintenance, require use of the Preventive Inspection Maintenance Checklist to pinpoint all inspection items. Retain a copy of these forms for your records.

They also require that all placards and decals on the unit are to be inspected.

All placards and decals must be in place and legible. Use the placards installation drawing and parts listing in the repair parts section 1 of this manual to check these placards and decals.

Snorkel recommends that you make additional copies of the Preventive Inspection Maintenance Checklist forms for your use in performing these inspections.

⚠DANGER

Failure to perform the Preventive Maintenance at the intervals outlined in the Maintenance Schedule may result in a unit being operated with a defect that could result in INJURY or DEATH of the unit operator. Do not allow a unit to be operated that has been found to be defective.

Repair all defects before returning the unit to service.

Daily maintenance (operator's inspection)

Components	Service Required
Operator's manual	In document holder
Battery fluid level	Proper level
Battery Terminals	Clean, connections tight
Battery Charger	Proper operation
Cables and wiring harness	No wear or physical damage
hydraulic fluid level	Check fluid level
hoses, tubes, and fittings	No leaks
Tires and wheels	Good condition
Operating controls	Proper operation
Emergency stop	Shuts off controls
Level sensor	Proper operation
Emergency lowering	Proper operation
Weldments	No damage or deformation
Platform gate	Proper operation
Slide pads	Good condition
Fasteners	In place and tight
Lowering alarm	Sounds when platform lowers
Drive motion alarm	Sounds when aerial platform moves
Personal protective devices	Good condition
Horn	Sounds when activated
Electric drive motor	Proper operation
Placards and decals	In place and readable

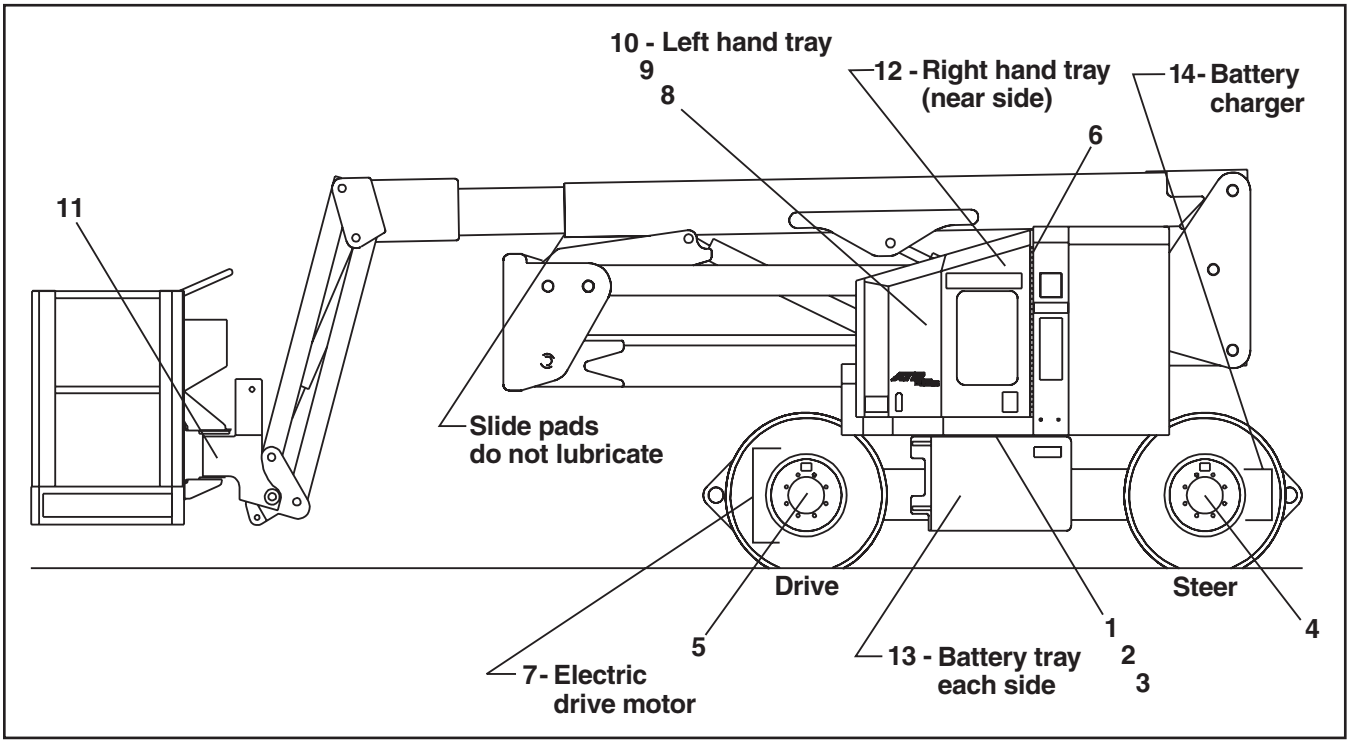
90 day or 150 hour maintenance (trained service technician)

Components	Service Required	Recommended Lubricant or Further Instructions
Daily maintenance	Perform maintenance as per schedule	
Preventive inspection maintenance checklist	Perform inspection, complete form	Retain copy of checklist
Placards and decals inspection	Inspect using drawing and parts listing in section 1 (repair parts)	Replace any missing or unreadable decals/placards
Batteries	Check specific gravity	1.260/1.275 at 80° F.
Charging system	Check operation	
Door hinges and latches	Lubricate	SAE 10W oil or spray lubricant
Rotation bearing	Lubricate	Conoco Super Sta #2 Above 32° Mobilgrease CM-P Below 32° Mobilgrease CM-L
Rotation bearing teeth & pinion	Lubricate	Mobil Mobiltac 375NC
Tie rods	Lubricate	Conoco Super Sta #2 Above 32° Mobilgrease CM-P Below 32° Mobilgrease CM-L
Gear hubs	Check fluid level, fill if low	Mobil Mobilube HD 80W-90
Platform lift capacity	Check if platform can lift maximum load	
Platform rotator	Check smooth operation	Repair or replace if not working properly
Platform controller	Check smooth operation and speeds	
Platform lift/lower speeds	Check smooth operation and speeds	
Hydraulic return filter	Check condition	Replace if dirty
Slide pads	Check condition	Do not lubricate

Yearly or 500 hour maintenance (trained service technician

Components	Service Required	Recommended Lubricant or Further Instructions
90 day or 150 hour maintenance	Perform maintenance per schedule	
Hydraulic oil reservoir	Clean and replace fluid	Above 10° Mobil DTE-13M Below 10° Mobil DTE-11M
Hydraulic return filter	Replace	After 1st. 50 hours, thereafter at recommended interval
Hydraulic reservoir suction filter	Clean and reinstall	
Hydraulic pressures	Check pressures	
Gear hubs	Replace fluid	Mobil Mobilube HD 80W-90
Platform controller	Check operation	
Ground controls	Check operation	
Front wheel bearings	Clean and repack	Conoco Super Sta #2 Above 32° Mobilgrease CM-P Below 32° Mobilgrease CM-L

Lubrication illustration



The illustration locates the lubrication points of the ATB 46e.

Lubricants

Specific lubricants as recommended by Snorkel, should be used in maintaining your unit. If in doubt regarding the use of lubricants other than those listed, contact Snorkel Customer Service Department, St. Joseph Missouri, for evaluation and recommendation.

Refer to the above lubrication illustration for location of item numbers.

Pressure gun application

Service all fittings as indicated in the Maintenance Schedule and lubrication illustration. Wipe away all excess lubricant from exposed surfaces. Over lubrication can collect dirt and foreign matter which acts as an abrasive. Lubrication of accessory equipment should be in accordance with the manufacturer's recommendations.

Rotation bearing

Rotation bearing (item 1.): Pressure gun lubricate bearing at recommended interval using lubricant as outlined in the maintenance schedule. Rotate while lubricating. Lubrication fitting is located on the font plate of the turntable.

Rotation gear teeth and pinion

Rotation gear teeth and pinion (item 2.): Gear teeth and gear box pinion should be lubricated with a spray-on type open gear lubricant.

Swing drive

Swing drive (item 3.): To check oil level, remove check plug located on the side of the gear box. Unit is full if oil is level with bottom of fill hole or just starts or run out.

Tie rods

Tie rods (item 4.): Lubricate at recommended interval using lubricant as outlined in the maintenance schedule.

Gear hubs

Gear hubs (item 5.): To check and fill Gear hubs:

1. Rotate wheel until bottom of filler/drain plug is about 1 inch above horizontal centerline.
2. Remove plug with drive ratchet and extension.
3. Fill until lubricant is level with bottom of fill hole.

Note:

Do not overfill gear hubs as they are not vented and need air space for expansion of oil to prevent damage to hubs.

Door hinges and latches

Door Hinges and Latches (item 6.): Lubricate at recommended interval using specific lubricants as outlined in the maintenance schedule.

After lubricating, remove any excess oil or over spray so it will not collect dirt and debris.

Electric drive motor

Electric drive motor (item 7.): The electric drive motor used on the ATB 46e is a special motor designed for use on this machine.

⚠CAUTION

Do not replace the drive motor with any other type of electric motor except for factory authorized replacement motors. Standard electric motors will not work.

Hydraulic oil reservoir

Hydraulic oil reservoir (item 8.): The fluid level should be between the low and full marks on the sight gauge indicator and should be checked with all cylinders fully retracted and the platform in stowed position.

The interior of the reservoir should be wiped out and cleaned each time the hydraulic oil is changed. The reservoir filler/breather cap should be removed and the cap breather cleaned yearly with Kerosene, Fuel Oil, or other solvent.

Any time the hydraulic oil is changed or added, it is absolutely necessary that only clean hydraulic oil is used.

Note:

If it becomes necessary to add or use an oil other than the recommended fluid, it is important that it be compatible and equivalent to the factory fill. Local oil suppliers can generally furnish this information.

If questions still remain, contact Snorkel Customer Service Department, St. Joseph, Missouri, for further information.

Return filter

Return filter (item 9.): The hydraulic oil return filter is mounted in the right hand tray assembly.

The filter element is a throwaway type filter and should be changed after the initial break-in period (approximately 50 hours operation time).

The filter condition should be checked at the 90 day or 150 hour Preventive Inspection Maintenance interval or more frequently under extreme working conditions.

The filter is equipped with a hydraulic pressure gauge to indicate the filter element condition.

A by-pass relief within the filter base is provided and is set to by-pass at 25 PSI. If pressure readings are above 25 PSI, the filter should be changed.

The filter condition indicator is accurate only when the machine is running at maximum RPM and the pump is discharging maximum flow, which occurs only during full speed driving.

This requires that the indicator be observed while the unit is in motion, booms fully retracted and in stowed position, and the machine set for low speed drive. The oil temperature should be at least 90° F.

⚠CAUTION

Use extreme caution while observing the condition indicator because of the motion of the drive wheels. The condition indicator is best observed from outside the track of the vehicle wheels to avoid a possible unsafe condition.

When changing the filter element, the oil inside of the filter element, should be examined for deposits of metal cuttings, which if present, could indicate excessive wear in some of the system components.

Suction filter

Suction filter (item 10.): A 100 mesh suction filter is located within the hydraulic oil reservoir and filters the pump suction flow.

The filter is cleanable and should be cleaned at the time interval shown in the maintenance schedule chart, using Kerosene, Fuel oil or other solvent and a soft bristled brush.

Inspect the filter for damage to wire cloth. Holes in the filter cloth leak dirt into the pump and other vital hydraulic components. If the filter element is damages, replace.

When the filter has been thoroughly cleaned, reinstall the filter on the suction line and tighten securely.

Platform rotator

Platform rotator (item 11.): The platform rotator required lubrication only if disassembled for repairs.

Consult the factory for proper lubricant is replacement of the platform rotator is required.

Emergency power battery

Emergency power battery (item 12.): ATB 46e machines are equipped with a 12 volt battery for use in an emergency situation if the main battery power should fail.

This battery should be maintain as outlined in the Battery care and maintenance section that follows.

Batteries

Batteries (item 13.): The battery and battery cables should be checked to assure that the connections are tight and free of corrosion. Fluid level should be maintained to assure that the battery will maintain proper charge.

Check specific gravity of battery per maintenance schedule.

The batteries are enclosed within a swing-out tray located on the side of the machine. For access to the batteries when the machine is lowered, position machine on a hard level surface, unlatch and open tray.

⚠DANGER

Lead-acid batteries contain sulfuric acid which will damage eyes or skin on contact. When working around batteries, **ALWAYS** wear a face shield to avoid acid in eyes. If acid contacts eyes, flush immediately with clear water and get medical attention.

Wear rubber gloves and protective clothing to keep acid off skin, if acid contacts skin, wash off immediately with clear water.

Lead-acid batteries produce flammable and explosive gases. **NEVER** allow smoking, flames or sparks around batteries.

Battery care and maintenance

The following information about battery care and maintenance was supplied by Interstate Batteries and is reprinted here with their permission.

1. New batteries need to be cycled several times before reaching full capacity (20-50 cycles, depending on type). Usage should be limited during this period.
2. Always recharge batteries fully, immediately after use. Batteries perform best when they are fully charged. More capacity and longer life will result from this practice.
3. The deeper the discharge, the fewer number of cycles a lead-acid battery will deliver. Deep discharges deteriorate the battery quicker than lighter shallow cycles.
4. Battery cables should be intact, and connectors kept tight at all times. Systematic inspection is recommended.
5. Vent caps should be kept in place and tight during vehicle operation and battery charging.
6. Batteries should be kept clean -- free of dirt and corrosion -- at all times. Always keep the top of batteries clean. A film on top of the battery can cause the current to migrate between the posts, accelerating self discharge.
7. Never let the electrolyte level of a lead-acid battery fall below the plates. Lack of maintaining the electrolyte in a lead-acid battery causes damage to the exposed portion of the plate which reduces capacity.
8. Always check electrolyte level before charging. Do not add water to individual cells unless plates are exposed. Batteries should be watered after charging unless the plates are exposed before charging. If exposed before charging, the plates should be covered by approximately 1/8" of water. Check water level after charging. Water should be kept 1/4" below the bottom of the fill tube in the cell cover.
9. Water used to replenish batteries should be distilled or treated to not exceed 200 T.D.S. (total dissolved solids... parts per million). Particular care should be taken to avoid metallic solids (iron).
10. A full charged battery will give you the best and longest service. Be sure the batteries are fully charged before testing or using. A fully charged battery, without a drain or load, after the surface charge has dissipated, is 6.35 volts for a 6 volt battery.

    6.30 volts = 93% charged
    6.27 volts = 89% charged
    6.25 volts = 85% charged
    6.22 volts = 80% charged
    6.10 volts = 50% charged
    5.94 volts = 20% charged

11. Batteries should not be discharged below 20% of capacity (approximately 1.8 volts per cell under normal operating load; 1.98 volts open circuit; 1.145 specific gravity). Proper battery sizing will help avoid excessive discharge.
12. Battery chargers should be sized to fully charge batteries in an eight hour period. Chargers should be kept in proper operating condition.
13. Do not use a mismatched charger of any type; i.e., a 12 volt charger on a 24 volt pack or a 24 volt charger on a 12 volt pack. An undersized charger will never get the job done, no matter how long it tries. An oversized charger will cause excess gassing and heat that could possibly result in a battery meltdown and/or explosion.
14. Never charge a lead-acid battery with a sealed (gel cell) battery charger. The lead-acid battery needs higher voltage to finish its charge. Without it the battery will never come back to 100% and sulfation can occur.
15. Always allow batteries to cool off after charging. The cooling time is very important because heat is generated during the recharge and discharge cycles. Without the cooling time the heat grows, accelerating grid corrosion which is one of the major causes of battery failure. Charging practice should enable batteries to cool before use.
16. Deep cycle batteries need to be equalized periodically. Equalizing is an extended, low current charge performed after the normal charge cycle. It helps keep cells in balance. Actively used batteries should be equalized once per week. Manually timed chargers should have the charge time extended approximately 3 hours. Automatically controlled chargers should be unplugged and reconnected after completing a charge cycle.

17. In situations where multiple batteries are connected in series, parallel, or series-parallel, a replacement battery's should be of the same size, age, and usage level as the companion batteries. Do not put a new battery in a pack that has 50 or more cycles. Either replace all the batteries with new batteries or install a good used battery's in place of the bad. New batteries should be given a full charge before use.
18. Periodic battery testing is an important preventative maintenance procedure. Hydrometer readings of each cell (fully charged) give and indication of balance and true charge level. Imbalance could mean the need for equalizing and is often a sign of improper charging or a bad cell. Voltage checks (open circuit, charged and discharged) can locate a bad cell or weak battery. Load testing will pick out a bad cell when other methods fail. The point is to look for the abnormal. A weak cell or battery will cause premature failure of companion cells or batteries respectively.
19. As batteries age, their maintenance requirements change, Generally their specific gravity is higher and gassing voltage goes up. This means longer charging time and/or higher finish rate (higher amperage at the end of charge). Usually, older batteries need to be watered more often and their capacity decreases.
20. “Opportunity charging”, a short partial charge during an extended duty cycle, is a controversial subject. Generally, the practice is a “crutch” to make up for undersized batteries. The correct approach is to install adequate battery capacity. If this is impossible because of lack of space in the battery compartment or extreme operating conditions (24 hour intermittent use, as an example), “opportunity charging” is better than excessive battery discharging. However, the practice can cause batteries to over heat, require more watering, and usually will shorten battery life. “Opportunity charging” is a trade off; something to avoid if possible. One charging cycle per day is preferable.
21. Extreme temperatures can substantially affect battery performance and charging. Cold reduces battery capacity and retards charging. Heat increases water usage and can result in overcharging. Very high temperature can cause “thermal run away” which may lead to and explosion or fire. If extreme temperature is an unavoidable part of an application, consult a battery/charger specialist about ways to deal with the problem.
22. An overly discharged battery might need to be cycled a few times before it can recover fully. If a battery begins to heat before coming up to a full charge, it might be necessary to discharge the battery and recharge it a few times. The charge and discharge cycle might help the current acceptance of the battery and facilitate its recovery to a usable condition.
23. Inactivity can be harmful to deep cycle batteries. If they sit for several months, a “boost” charge should be given -- more frequently in warm climate (about once a month) than in cold (every 2-3 months).
24. Never store a battery in a discharged state. The sulfate that forms during discharge can make the battery impossible to recharge fully.

Battery charger

ATB 46e units are equipped with an onboard automatic battery charger. This charger has an electronic circuit that will completely recharge the batteries and automatically turn off after the charge cycle is completed.

The charging cycle may last 11/2 to 16 hours depending on the state of charge of the batteries. If the charging cycle should exceed 16 hours without the batteries being fully recharged, the charger should be shut off and the batteries should be checked.

If the batteries show no signs of problems and the specific gravity readings are within the range indicated previously, then the charger should be checked.

General charging cautions

1. Do not recharge batteries unless Electrolyte level has been checked. Operate charger in accordance with the battery charging instructions outline in this manual. Place BATTERY DISCONNECT switch in the “OFF” position before charging batteries.
2. Do not smoke or introduce a flame or spark in the charging area.

⚠DANGER

Lead acid batteries generate highly explosive Hydrogen gas, especially during charging cycle. To avoid the possibility of an explosion, charge batteries only in a well ventilated area away form sparks or flame.

3. Use protective face and eye equipment when checking the condition of charging batteries.
4. Place the battery disconnect switch in the "OFF" position before charging batteries.

90 day or 150 hour checklist

OK	OK - No Service Required
✔	Corrective Action Required
X	Corrected, (Record description of corrective action).

Serial Number _____

Inspection Procedures Codes
(1) Weld cracks, dents and/or rust
(2) Installation
(3) Leaks
(4) Operation
(5) Condition
(6) Tightness
(7) Residue buildup
(8) See placards and decals inspection chart

Check	OK	✔	X
Chassis			
Structural (1)			
Steering cylinder pin caps and snap rings (2,6)			
Steering linkage (4)			
Tires, foam filled (5)			
Hydraulic tubes and hoses (3,5)			
Decals and placards (2,8)			
Torque drive wheel lug nuts per placard on wheel (6)			
Torque steer wheel lug nuts per placard on wheel (6)			
Right drive motor (4)			
Left drive motor (4)			
Battery disconnect switch (4)			
Lubrication points			
Turntable			
Structural (1)			
Torque turntable top bolts @180 ft. lbs. (6)			
Torque turntable bottom bolts @180 ft. lbs. (6)			
Hydraulic tubes and hoses (3,5)			
Cowling (5,6)			
Wire Harness (2,5)			
Decals and placards (2,8)			
5° tilt alarm (4)			
Hydraulic hoses and tubes (3,5)			
Electrical wires (3,5)			
Lower booms			
Structural (1)			
Boom lift cylinder pin caps (2,6)			
Boom lift cylinder holding valve (3,4)			
Riser lift cylinder pin caps (2,6)			
Riser lift cylinder and holding valve (3,4)			
Master level cylinder pin caps (2,6)			
Hydraulic hoses and tubes (3,5)			
Electrical wires (5)			
Right hand tray			
Structural (1)			
3 station control valve (3,4)			
Filter minder gauge (4)			
Hour meter (4)			
Hydraulic oil return filter (3,4)			

Check	OK	✔	X
Left hand tray			
Structural (1)			
Hydraulic pump (4)			
Hydraulic oil reservoir (2,3,5)			
Hydraulic oil reservoir filler/breather cap (2,6)			
Hydraulic oil reservoir fluid level (5)			
Upper booms			
Structural (1)			
Electrical wires (5)			
Extension cylinder pin caps (2,6)			
Jib cylinder pin caps and retaining rings (2,6)			
Jib cylinder and holding valve (3,4)			
Slave level cylinder pin caps (2,6)			
Slave level cylinder holding valves (3,4)			
5 station control valve (3,4)			
Power trak assembly (2,4,7)			
Hydraulic hoses and tubes (3,5)			
Decals and placards (2,8)			
Platform rotator (3,4)			
Platform rotation holding valve (3,4)			
Platform rotator mounting bolts (2,6)			
Platform			
Structural (1)			
Decals and placards (2,8)			
Platform gate (4)			
Platform mounting bolts (2,6)			
Correct operators manual in document holder (2)			
Batteries			
Battery terminals (6,7)			
Battery electrolyte level (5)			
Indicator gauge (4)			
Lower control station			
Station selector switch - ground controls PLATFORM CONTROLS DO NOT WORK (4)			
Station selector switch - platform controls GROUND CONTROLS DO NOT WORK (4)			
Keyed master switch (4)			
Boom speed rheostat switch (4)			
Audible alarm (4)			
Turntable rotation (4)			
Riser boom lift UP-DOWN (4)			
Main boom lift UP-DOWN (4)			
Jib boom lift UP-DOWN (4)			
Boom extension IN-OUT (4)			
Platform leveling (4)			
Platform rotation (4)			
Emergency power, all functions (4)			
Emergency stop (4)			

Preventive inspection maintenance

Check	OK	✔	X
Upper control station			
Foot switch, functions operate when engaged (4)			
Boom speed rheostat switch (4)			
Horn (2,4)			
Turntable rotation (4)			
Riser boom lift UP-DOWN (4)			
Main boom lift UP-DOWN (4)			
Jib boom lift UP-DOWN (4)			
Emergency power, all functions (4)			
Emergency stop (4)			
Gradual start to stop drive/steer controls (4)			
Drive speed limit switch, boom lift (4)			
Drive speed limit switch, boom extend (4)			
110 volt AC power to platform (2,4)			
Boom extension IN-OUT (4)			
Platform leveling (4)			
Platform rotation (4)			
Drive range HIGH-LOW, boom stowed (4)			
Drive speed SLOW, boom raised (4)			

Check	OK	✔	X
Optional equipment			
Airline to platform (2,4)			
All motion warning alarm (2,4)			
Operation warning light (2,4)			
Optional platform (2,4)			
Platform lights (2,4)			
Sandblast protection (2,4)			
110 volt AC hydraulic generator (2,4)			
Vandalism protection (2,4)			
Descent alarm (2,4)			
Travel alarm (2,4)			
Sound suppression (2,4)			
Platform swinging gate (2,4)			
Ground fault circuit interrupt (2,4)			

Corrective Action Required

Note: If correction action is required on any item, attach sheet indicating problem and action taken.

All items have been properly checked and tested and found to be operating satisfactory or necessary corrective action has been completed.

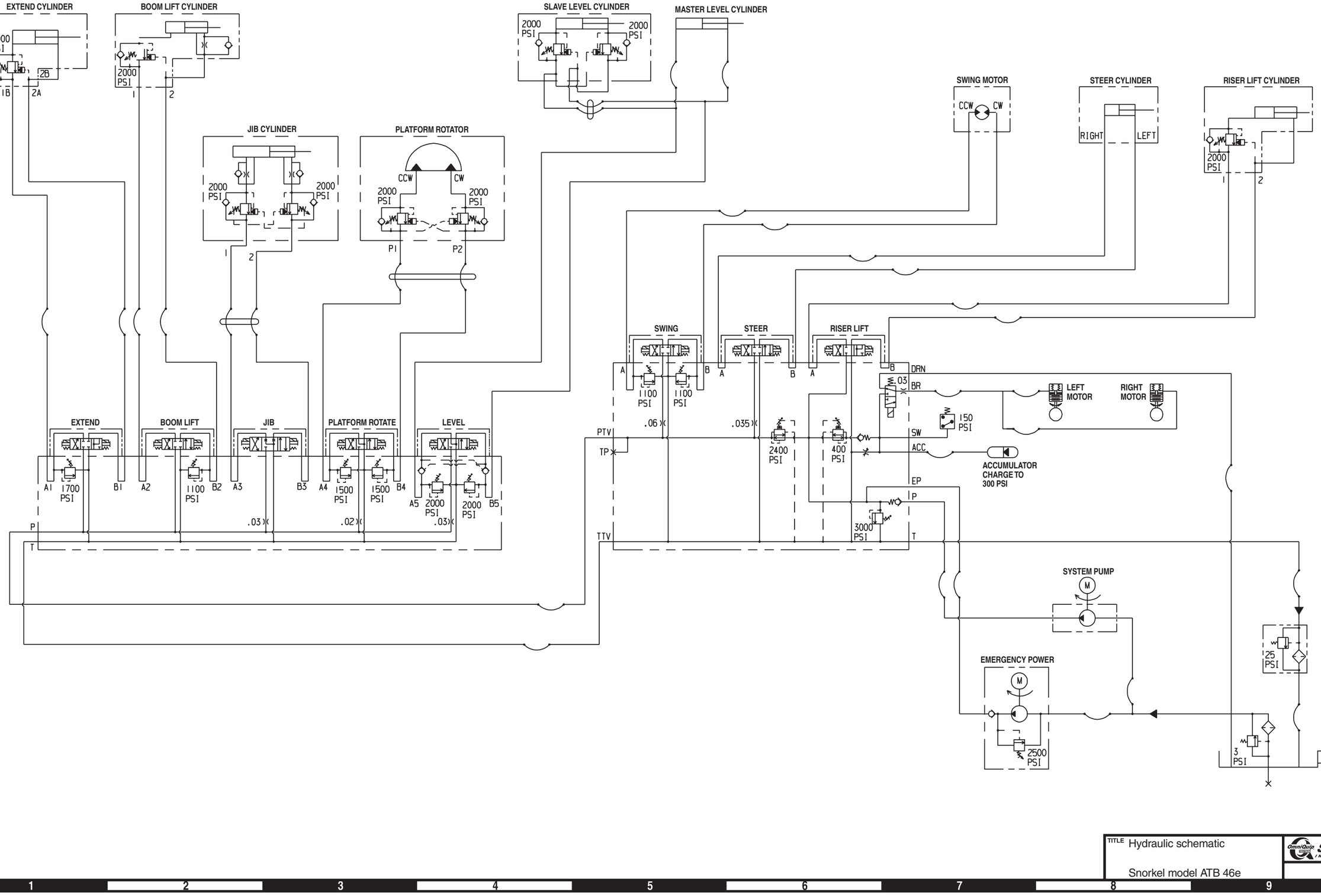
Inspected By: _____ Date _____

Capscrew torque chart

GRADE BOLT	SAE GRADE 1 OR 2	SAE GRADE 5	SAE GRADE 6	SAE GRADE 8
MARKING				
DEFINITION	INDETERMINATE QUALITY	MINIMUM COMMERCIAL QUALITY	MEDIUM COMMERCIAL QUALITY	BEST COMMERCIAL QUALITY
MATERIAL	LOW CARBON STEEL	MEDIUM CARBON STEEL TEMPERED	MEDIUM CARBON STEEL Q & T	MED. CARBON ALLOY STEEL Q & T
MIN. TENSILE STRENGTH	64,000 P.S.I.	105,000 P.S.I.	133,000 P.S.I.	150,000 P.S.I.
BOLT SIZE	RECOMMENDED TORQUE VALUES (FT - LBS)			
1/4	5	7	10	10.5
5/16	9	14	19	22
3/8	15	25	34	37
7/16	24	40	55	60
1/2	37	60	85	92
9/16	53	88	120	132
5/8	74	120	167	180
3/4	120	200	280	296
7/8	190	302	440	473
1	282	466	660	714

The following rules apply to the chart

1. Consult manufacturers' specific recommendations when available.
2. The chart may be used with both course and fine thread fasteners lightly lubricated.
3. Increase torque by 20% when multiple tapered tooth (shake proof) lock washers are used.
4. The torque values are given in foot-pounds.
5. Inch pound equivalent may be obtained by multiplying by 12.



TITLE Hydraulic schematic

Snorkel model ATB 46e

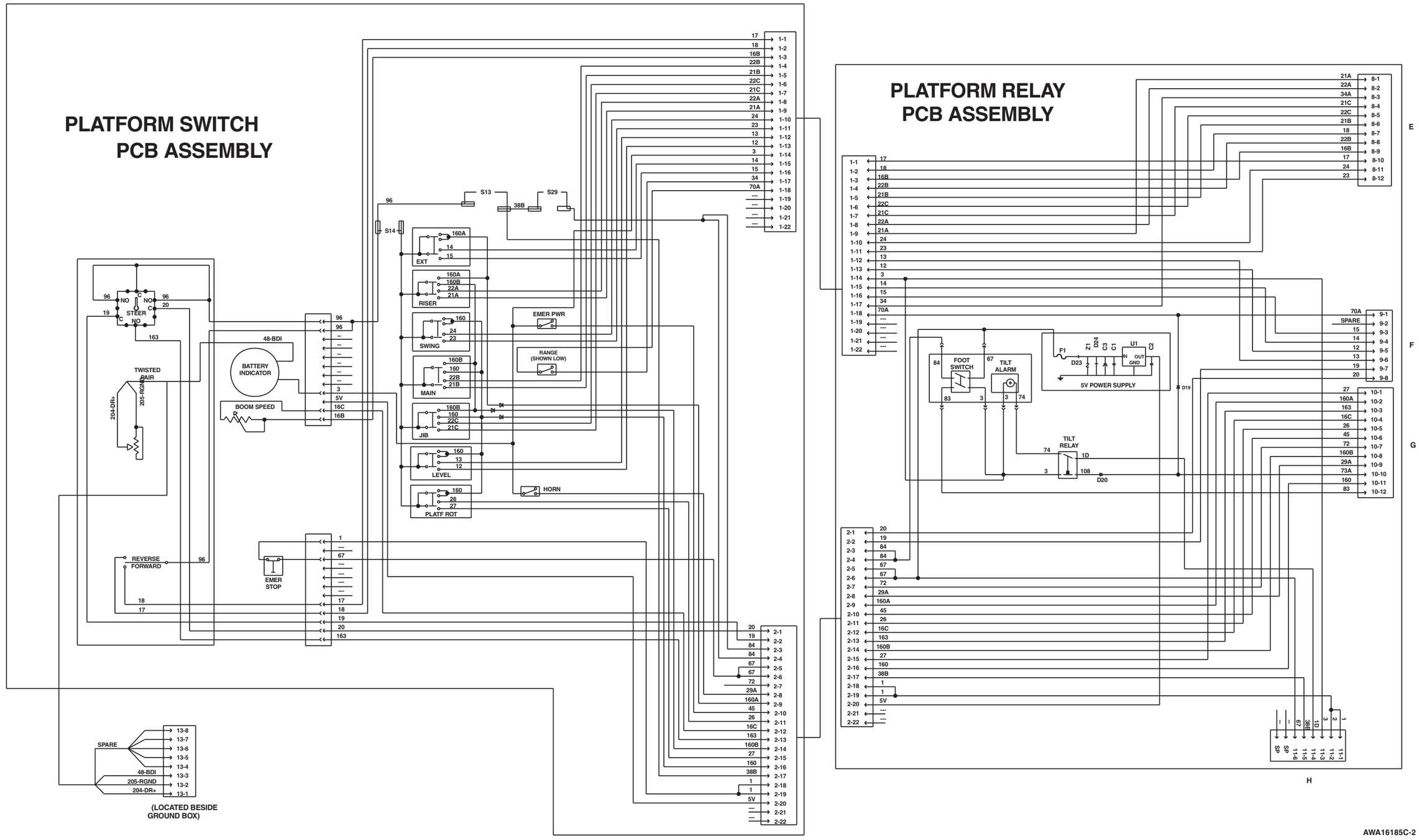
Page 11

GROUND SWITCH PCB ASSEMBLY

GROUND RELAY PCB ASSEMBLY

GROUND CONTROL INTERLOCK
EMER PWR (BASE)
S30
PLT/BASE SEL SW
GROUND BOOM SPEED
KEYED IGN
EMER STOP
MAIN
EXT
SWG
JIB
RISER
LVL
ROT
L15
D1
16D
16B
16A
BATTERY GROUND NODE
PASS THROUGH
R10 HORN
R12 MOTION ALARM RELAY
AUX RELAY
L21
R1
L12
TIME OUT RELAY 2
TIME OUT MODULE
8 NO
9 COM
2 SUPPLY +
3 SUPPLY -
5 SIG
ECU RELAY
EMER PWR RELAY
AUX BATTERY RELAY
AUX BTRY CHG ISOLATOR
D3
D4
D5
D6
D7
D8
D25
D26
D27
D28
D29
D30
D33
D35
D36
D38
DRIVE
REVERSE
SPARE
H
G
F
E
D
C
B
A

AWA16185B-1



TITLE Wiring schematic
sheet 2
Snorkel model ATB 46e

OmniQuip Snorkel INTERNATIONAL

EXTERNAL COMPONENT ELECTRICAL DIAGRAM

SHOWN W/WHEELS STRAIGHT

LEFT TURN SWITCH

RIGHT TURN SWITCH

BULKHEAD

11-12	1K
11-11	73A-DRV
11-10	1H-MCPWR
11-9	50-14V
11-8	50B-STR
11-7	50A-STL
11-6	34A-HREQ
11-5	159A-BRK
11-4	159C-BRK
11-3	38B-FSW
11-2	18-DRVGO
11-1	17-DRVDIR

D

4-12	SP
4-11	21B MAIN DOWN
4-10	15 RETRACT
4-9	3
4-8	13 LEVEL UP
4-7	12 LEVEL DOWN
4-6	14 EXTEND
4-5	26 PLAT ROT CW
4-4	27 PLAT ROT CCW
4-3	22B MAIN UP
4-2	22C JIB UP
4-1	21C JIB DOWN

C

3-12	161
3-11	159C
3-10	159A BRAKE
3-9	38B
3-8	103 HORN
3-7	29A
3-6	24 SWING CW
3-5	23 SWING CCW
3-4	22A RISER UP
3-3	21A RISER DOWN
3-2	20 STEER RIGHT
3-1	19 STEER LEFT

MOTION ALARM

PSI BRAKE

BEACON

B

2-12	38A
2-11	6B
2-10	159C-BRK
2-9	159A-BRK
2-8	38B-FSW
2-7	34A-HREQ
2-6	18-DRVGO
2-5	17-DRVDIR
2-4	1B
2-3	1E
2-2	
2-1	1H-MCPWR

A

1-12	160B
1-11	161
1-10	160A
1-9	163
1-8	160
1-7	73A
1-6	38
1-5	16B
1-4	16A
1-3	6A
1-2	6
1-1	1D

HOUR METER

73B-TLTO

73A-DRV

B-

TIME DELAY MOD
(1) SEC ON DELAY
(OFF TILT)

MASTER BTRY DISCONNECT

225 A FUSE

PWR DRAIN ELIM RELAY

1E 217 6A

BATT DISC CONTACTOR 1ES

62 1K

AUX BTRY

100 A FUSE

217

BULKHEAD

12-12	1G
12-11	B-
12-10	1ES
12-9	1E
12-8	217
12-7	48-BDI
12-6	205-RGND
12-5	204-DR+
12-4	162
12-3	38A
12-2	6B
12-1	

LINE CONTACTOR

ELECT. BRAKE DRIVER

D1

MC-48V MC-14V+ 38B-FSW 34A-HREQ 17-DRVDIR 18-DRVGO 50B-STR 50A-STL LC-LOW

PMT-2

OSC CARD, LEFT CONTROL (MASTER)

OSC CARD, RIGHT CONTROL (SLAVE)

LD-SHR

LD-SHL

PMT

204-DR+

73B-TLTO

TACH L

TACH R

161 160B 162 163 160 160A 16A 16B

2 3 4 5 6 7 8 9 10 11 12 13 14

160B-100%
160A-50%
160-20%

SEVCON CONTROLLER

B- S A

HYD PUMP

1D 73A TD B-

TILT SENSOR
(SHOWN LEVEL)
(1) SEC DELAY
ON TILT,
(1) SEC
OFF TILT
(SEE TIME
DELAY MOD)

3 HYD PUMP 6 62 217

EMER PWR PUMP SOLENOID

GROUND

SEVCON RELAY

162 6B 38A

PUMP MOTOR CONTACTOR

6B 38A

CHARGE UP RESISTOR

SUPPRESION DEVICE

"+"

GROUND

BRAKE/LC RELAY

MC-14V+

LH SENSOR

RH SENSOR

B-

POWER CONNECTIONS LEFT CONTROL

POWER CONNECTIONS RIGHT CONTROL

P A1 F1 N A2 F2

FIELD 1 FIELD 2 ARMATURE

LH MOTOR RH MOTOR

(LOCATED BESIDE GROUND BOX)

13-8	
13-7	
13-6	
13-5	
13-4	
13-3	48-BDI
13-2	205-RGND
13-1	204-DR+

BATTERY CHARGER CABLE

CHARGER

110VAC OR 220VAC

PWR DRAIN ELIM RELAY

1B 1G 3A

INPUT

14V-DC CONVERTER

OUTPUT

SUPPRESION DEVICE

AWA16185C-3